

BMCentral User Manual

< ver. 1.4 >

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Specification

Functions	Description
Monitoring units ⁽¹⁾	Wired : Max. 64 units Wireless : Max. 16 units
View Mode	1, 2, 4, 8 , and 32 Channel View Mode
Patient Data Storage	According to storage amount
Alarm	Sound and Display
Communication type	Bidirectional communication with patient monitor
Reviewer	Alarm, Waveform, Graphic Trend, and Tabular Trend
Print and Report	4 kinds of Report Form : Alarm, Waveform, Graphic Trend, and Tabular Trend
Supported Language	English, Italian, French, Spanish, German, Chinese, Russian, Polish, Czech, Turkish, Romanian, Portugues, Bulgarian, Korean

(1) Lite version is possible to connect up to 2 units.

Section 1. Installation of BMCentral

1-1. System requirement

Minimum requirement for BMCentral is Windows 2000. Installation is available for BMCentral CD only.

The minimum requirements of installation of BMCentral are as below.

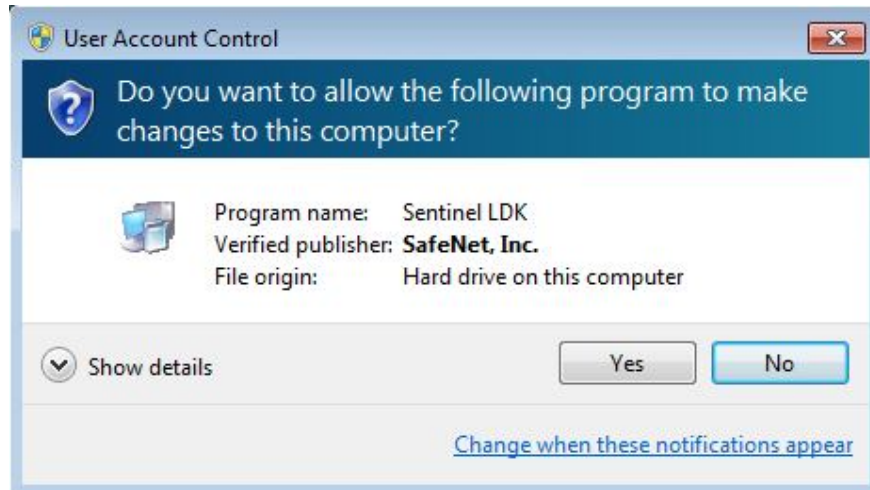
< Requirement >

	Minimum Requirement	Recommended Requirement
OS	Windows 2000 (Vista is not compatible.)	Windows XP SP2 (Vista is not compatible.)
CPU	Pentium 4 2.6MHz	Core2Duo 1.6GHz
RAM	512MB	1GB
Monitor	17 inches	19 inches
Graph Card (VGA Card)	VGA RAM 64MB (1024 x 768)	VGA RAM 128MB (1024 x 768)
CD-ROM drive	24X	48X
HDD	80GB	240GB
LAN Speed	10Mbps	100Mbps

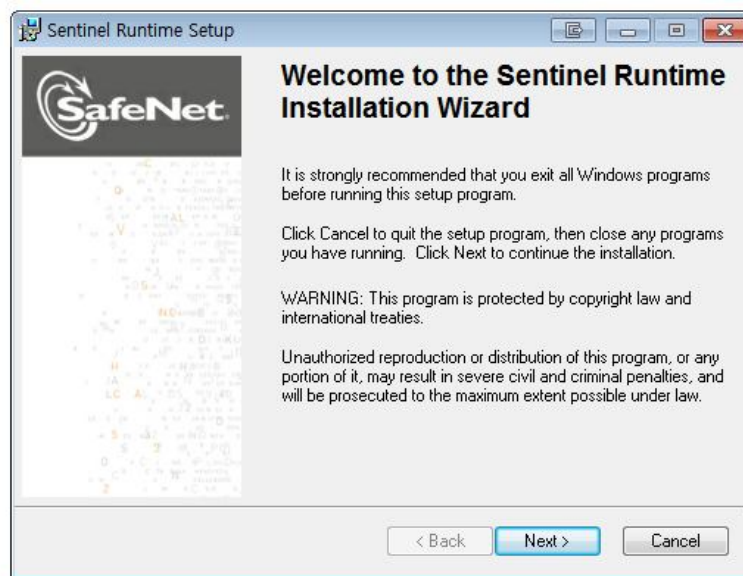
1-2. Installation & deletion of BMCentral program

1-2.1 “USB Lock Key” Driver Installation

- 1). Insert BMCentral Installation CD to the CD Drive.
- 2). Open CD-ROM drive and run “HASPUserSetup.exe”.
- 3). If window-browser pops up as follows, click “Run”.



- 4). If widow-browser pops up as follows, click “Next”.



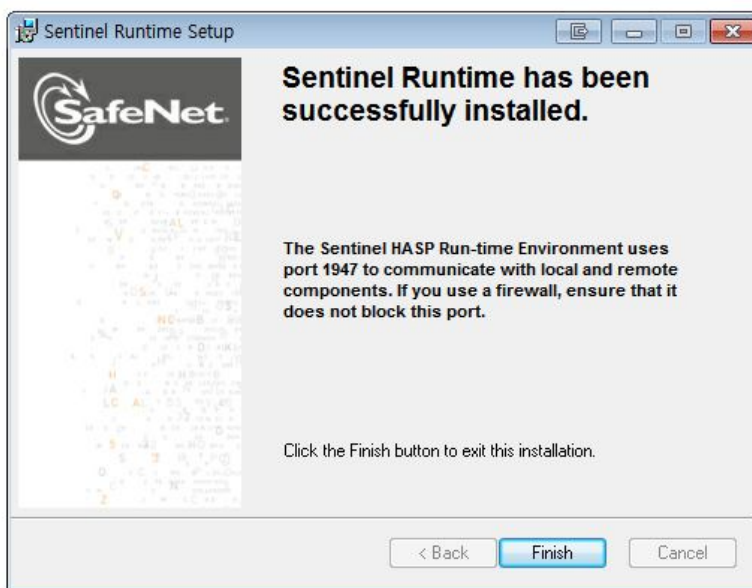
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5). If widow-browser pops up as follows, select “I accept the license agreement” and click “Install”.



6). If widow-browser pops up as follows, click “Finish”.

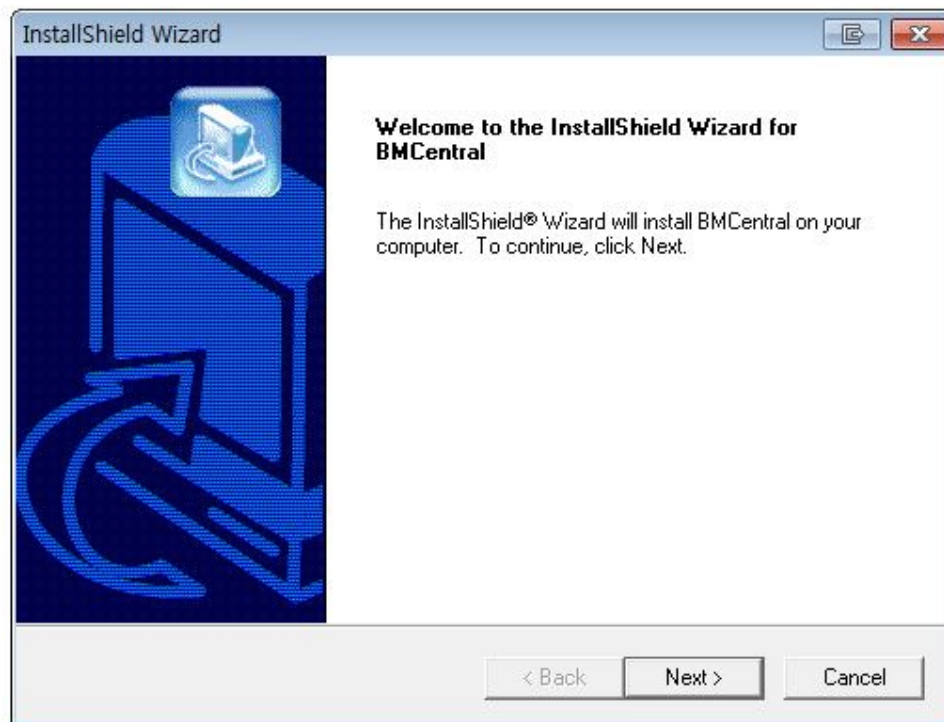


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1-2.2 Program Installation

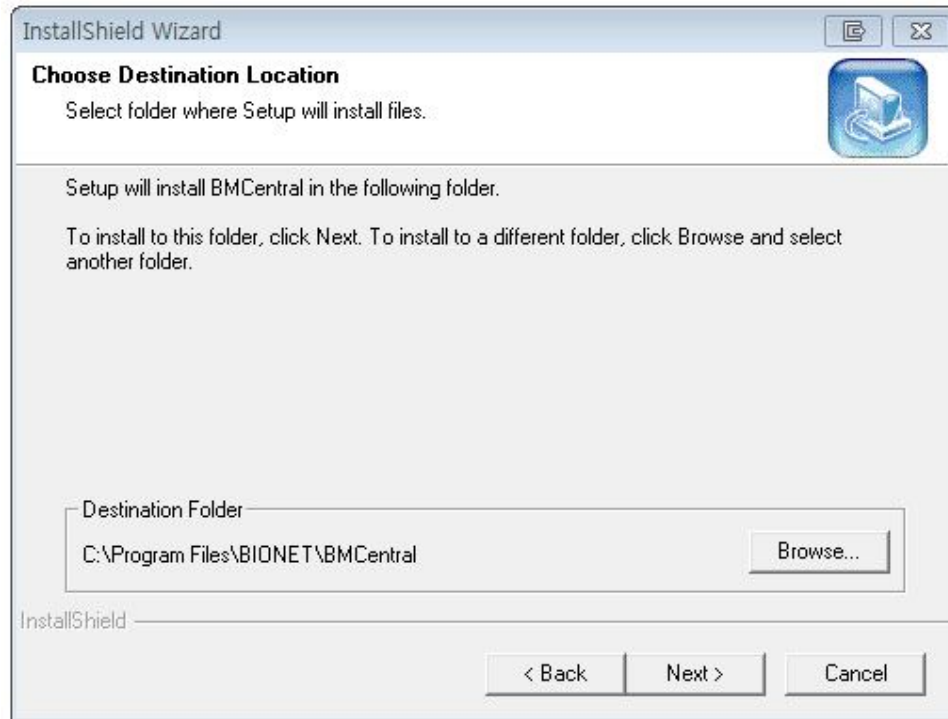
- 1). Insert BMCentral Installation CD to the CD Drive.
- 2). Open CD-ROM drive and run "Setup.exe".
- 3). If widow-browser pops up as follows, click "Next".



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- 4). Select 'folder' where you want to install BMCentral. If you want to install the program to another folder, click "Browse" and select folder.



- 5). Click "Next", then installation will start. If installation is completed, click "Finish".

- 6). If installation is successful, you may see the BMCentral Icon.

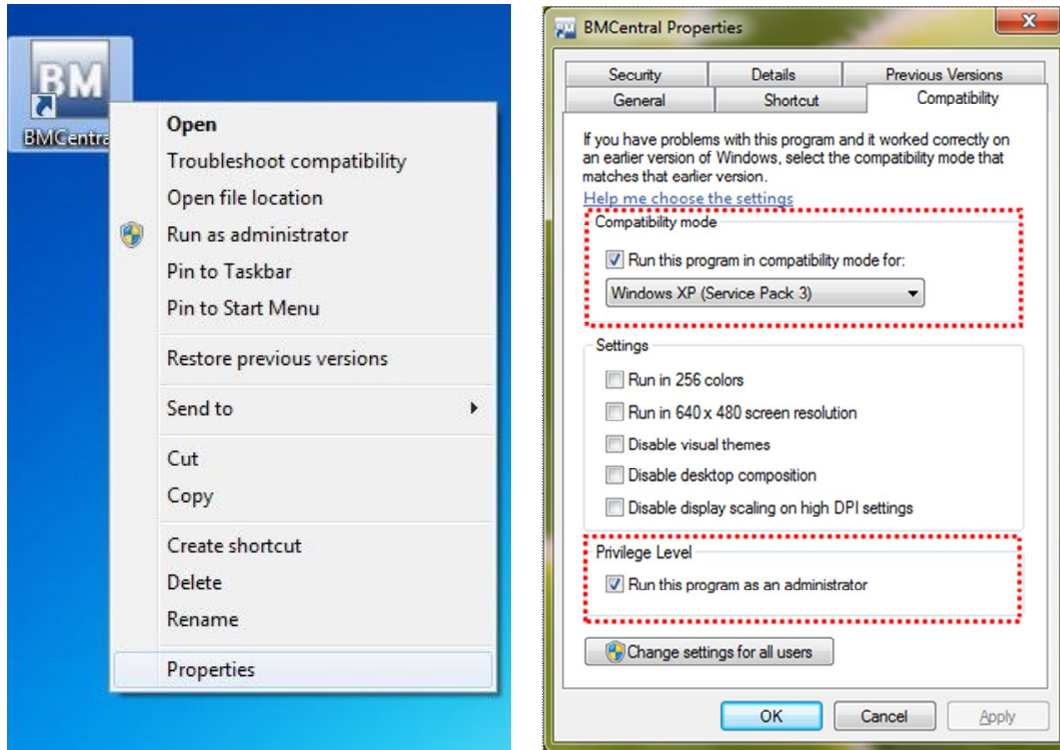


< BMCentral Icon >

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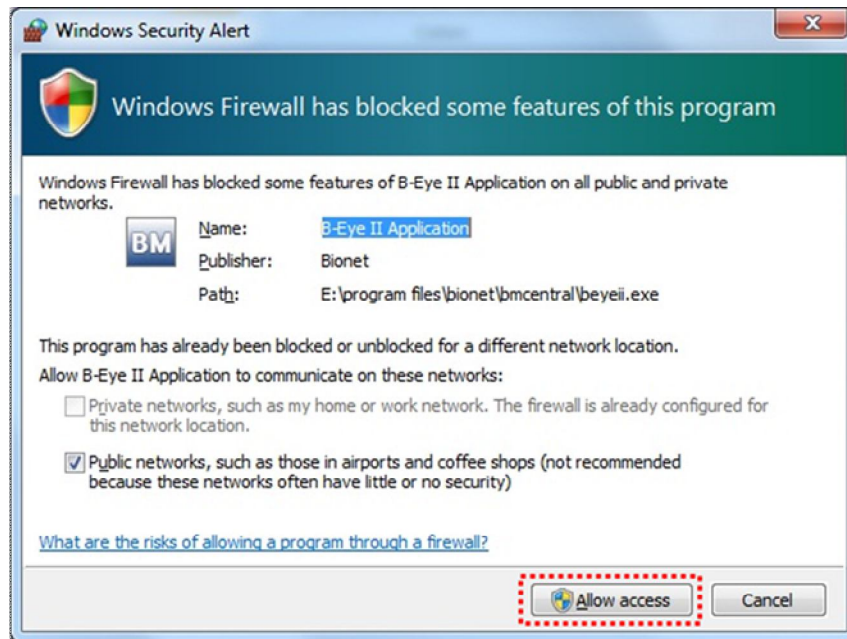
- 7) Change properties before starting program
(relevant over than windows 7 version)



After clicking the BMCentral icon with a right mouse button, please click the 'Properties'.

- Check the 'Compatibility mode' in the 'Compatibility' part, and then select "Windows XP (Service Pack 2)".
- Check "Run this program as an administrator" of the 'Privilege Level'.
- Click 'OK' button to apply all those changed things.

8) When the above message is showed during running the program, please click the “Allow access” button in order to use the network function.



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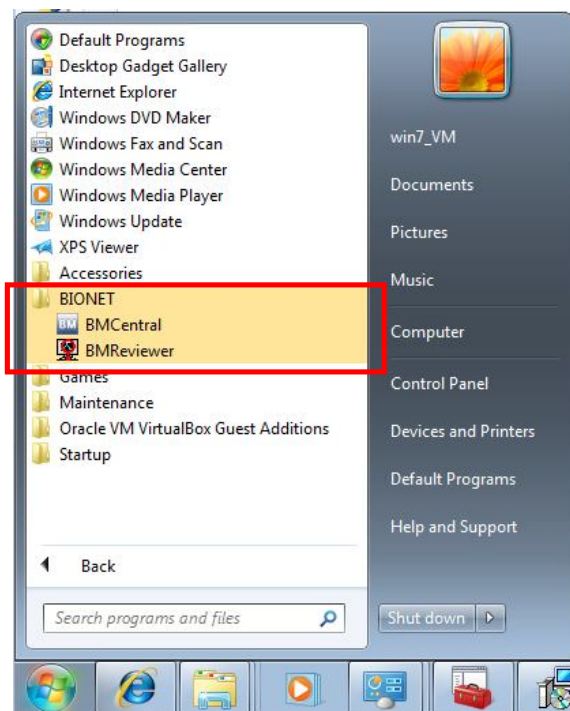
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1-2.3 To assign the data directory for saving the data.

1) Before running the BMCentral.exe, you've got to plug **USB Lock Key** in the USB port of PC. If you don't plug in the **USB Lock Key**, the following error message will be displayed.



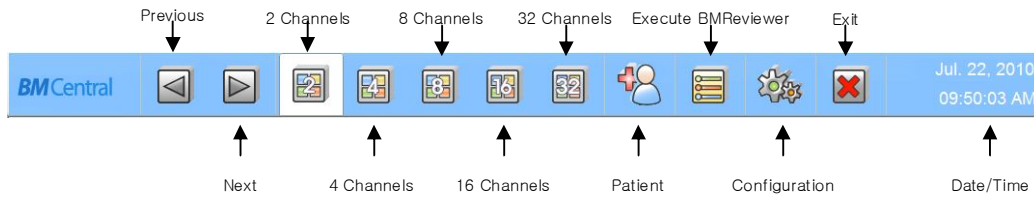
2) Double click "BMCentral Icon" from desktop or, go to "start->All programs ->Bionet->BMCentral" from desktop and run this program.



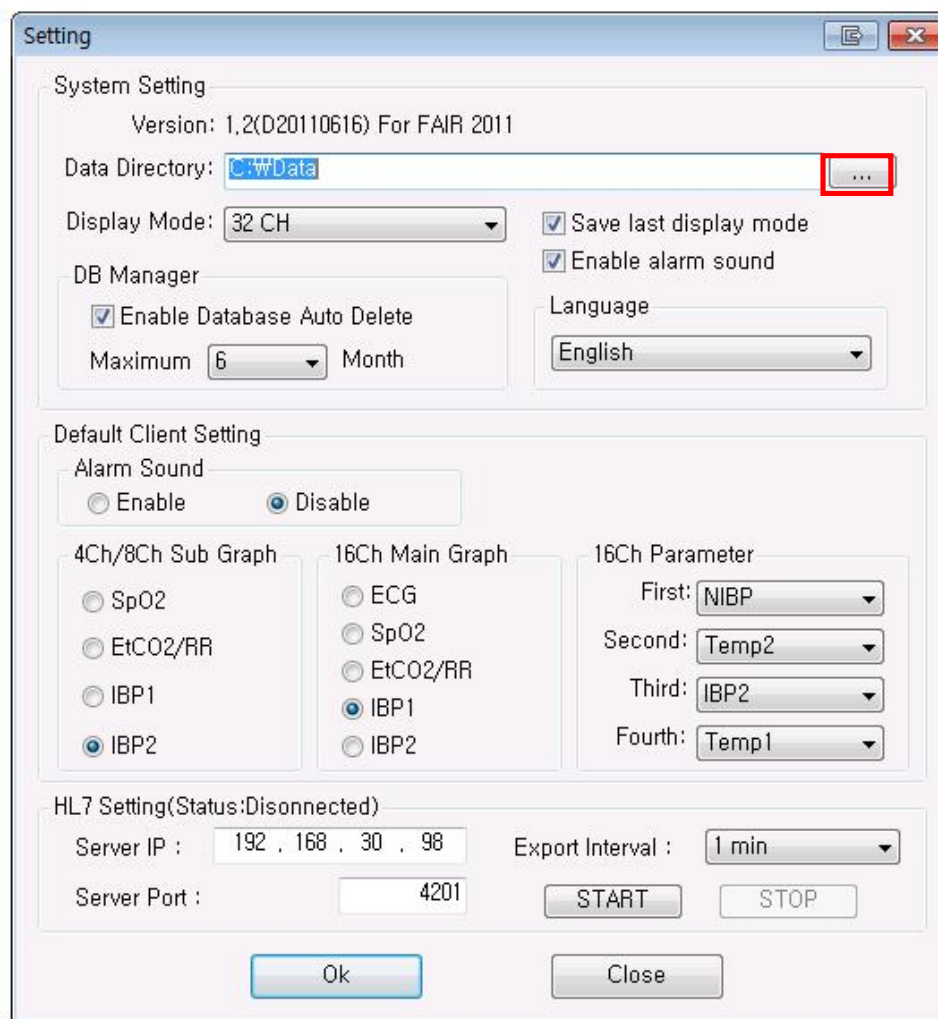
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3) Click "Configuration" from main menu.



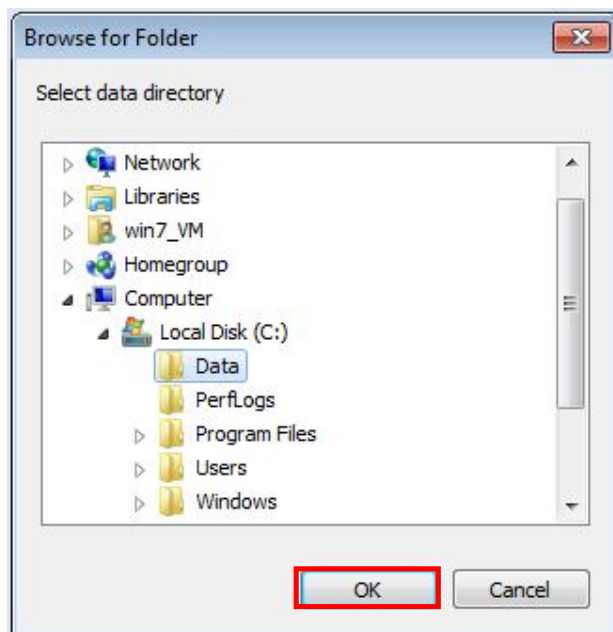
4) Click "... " button in Setting menu to assign the data directory.



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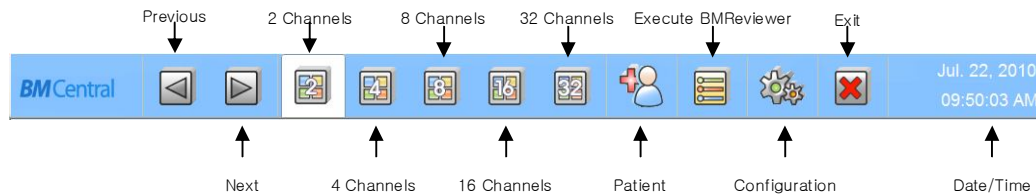
- 5) Find a folder of which you'll save the data. Select a folder and click 'O.K'.
(In this manual, assign "C:\WData" folder to save as follows)



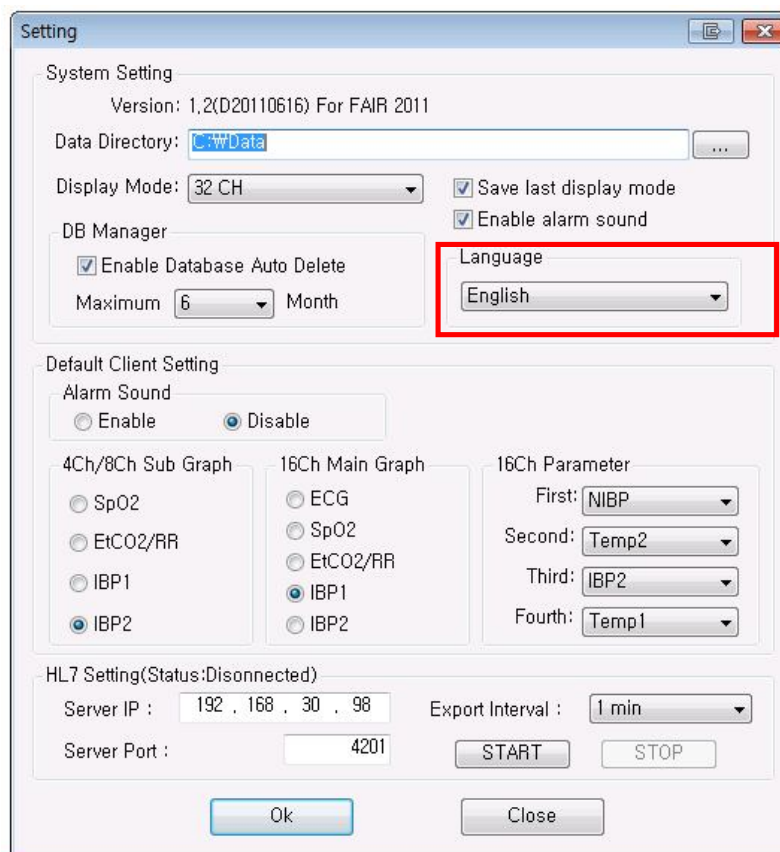
- 6) After assigning the data directory, click "OK" in Setting menu.
Then, setting up the path for saving data will be done.

1-2.4 To Select Local Language

1) Click "Configuration" from main menu.



2) Select "Language" in the following red box. The languages provided by BMCentral are English, Italian, French, Spanish, German, Chinese, Russian, Polish, Czech, Turkish, Romanian, Portugues, Bulgarian, and Korean.



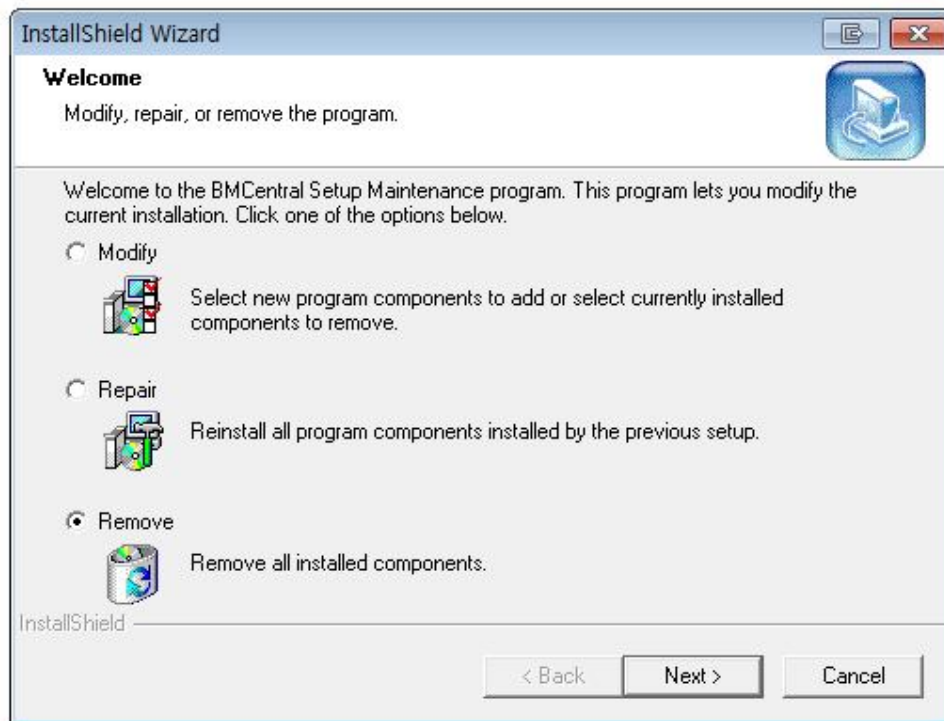
3) The new selected language will be applied after restarting the BMCentral.

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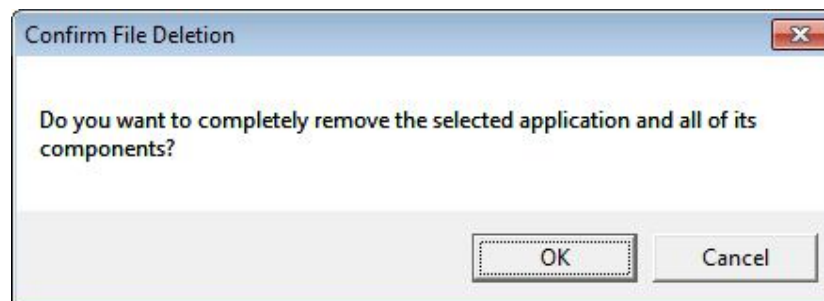
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1-2.5 To delete BMCentral program

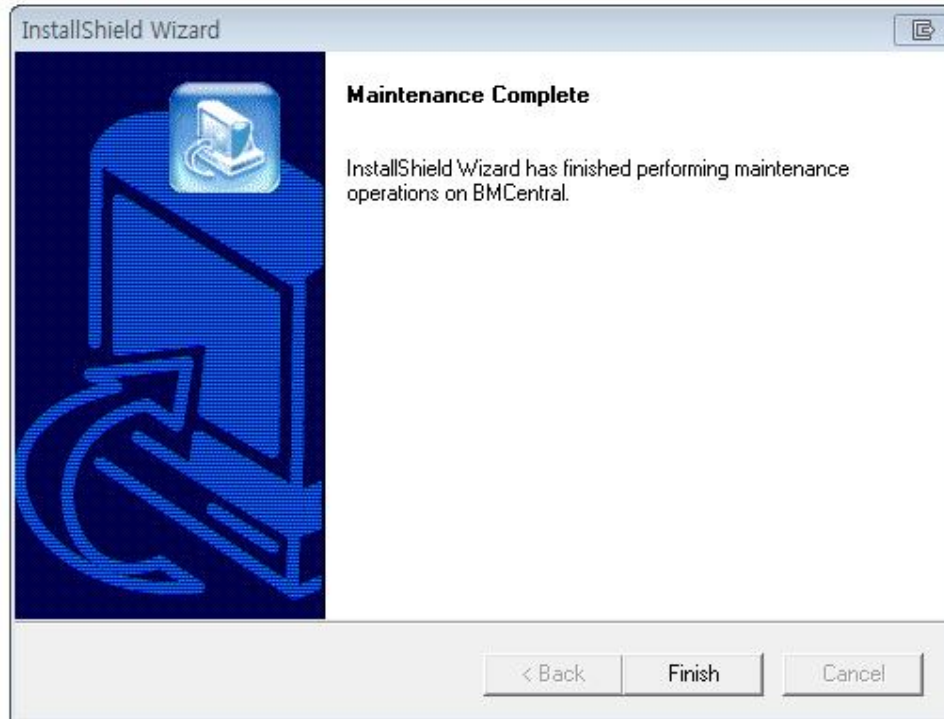
1) Move to **Start -> Control Panel -> Program addition/deletion -> BMCentral alteration/deletion**. Then, select “Remove” from “installShield Wizard”.



2) Click “OK” to delete program completely.



3) Click "Finish".



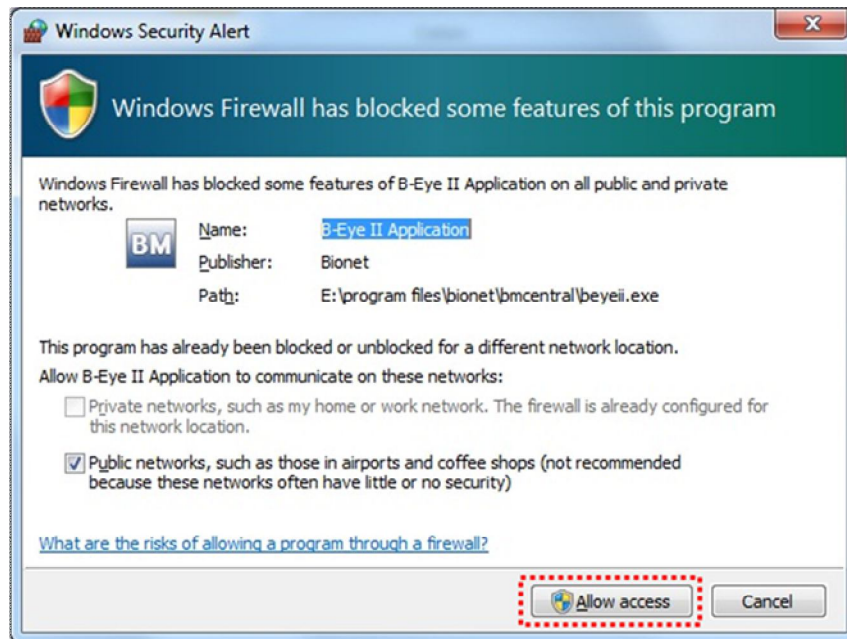
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1-2.6 Release Windows Firewall

If you click “Cancel”, Program will shut down by firewall. In this case, change firewall setting according to the order.

(relevant over than windows 7 version)



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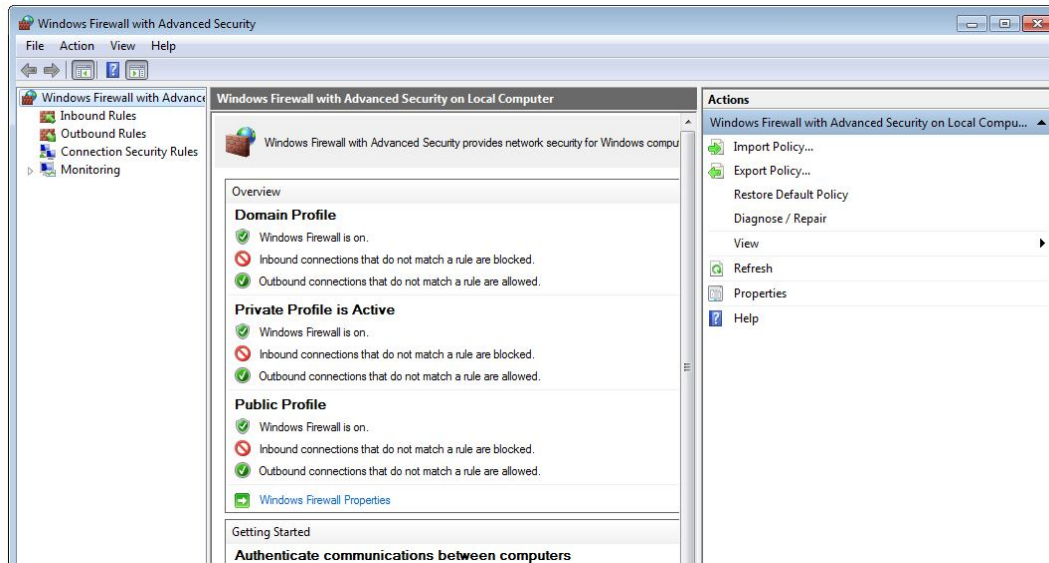
1) Move to Control Panel -> System and Security -> Windows Firewall



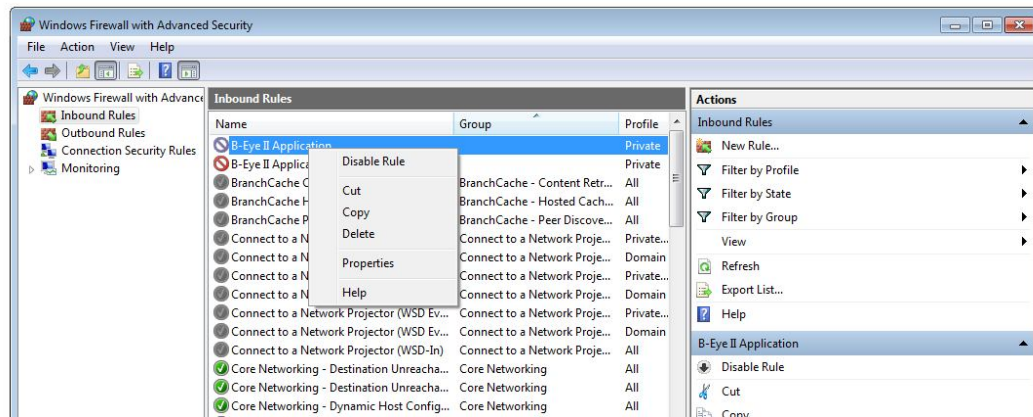
2) Click “Advanced settings”



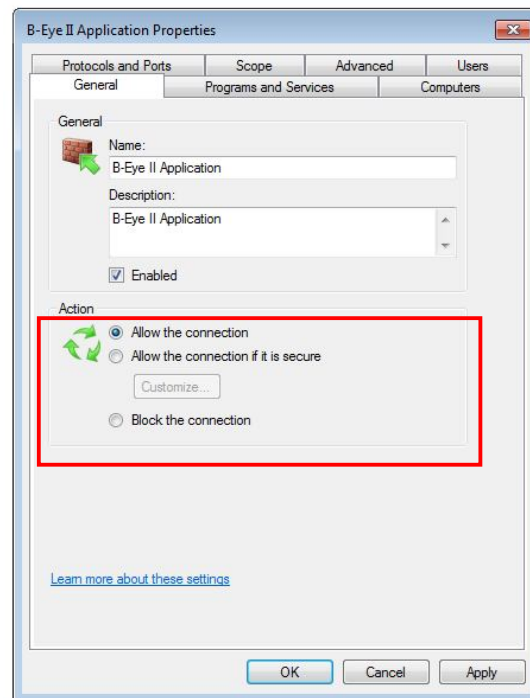
3) Click “Inbound Rules”



4) Select “B-Eye II Application” and click right button on mouse. Select “Properties”.



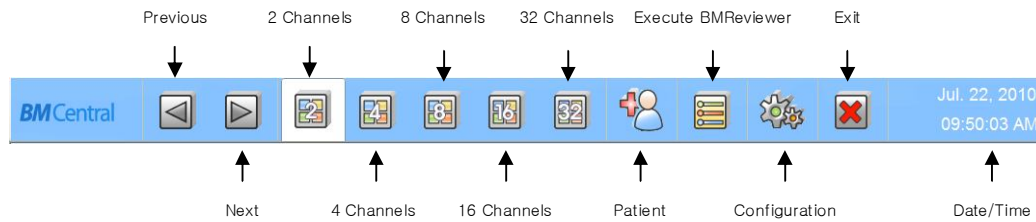
5) Check “Allow the connection” and click “OK”.



6) Another one (“B-Eye II Application”) need to change by same way.

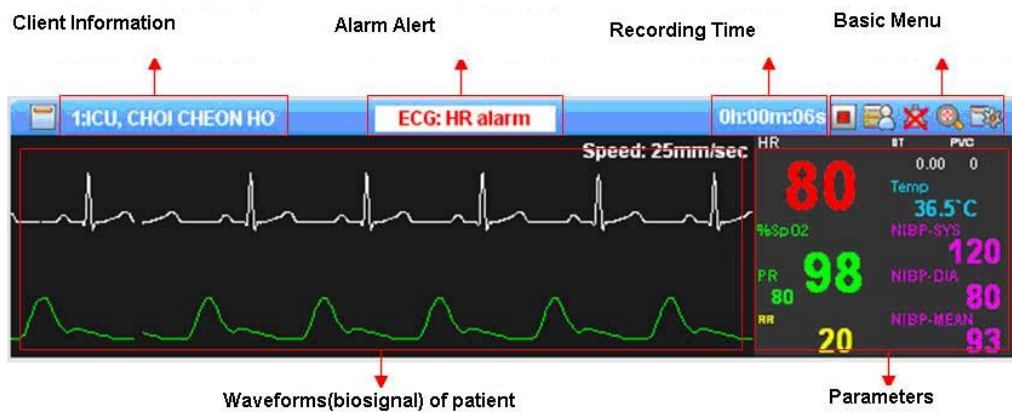
Section 2. Main & Client menu operation

2-1. Basic function of main & client menu.



<Main Menu>

- ▶ **Previous, Next:** To shift “channel page”
(In case you can ship page any more, this button will be deactivated.)
- ▶ **2,4,8,16,32 Channels:** To select number of clients(patient monitor) on screen.
- ▶ **Patient:** To register “patient information”.
- ▶ **Execute BMReviwer** To call up and open the saved file regarding patient information.
- ▶ **Configuration:** To set up the environment of system.
- ▶ **Exit:** To quit the program.
- ▶ **Date/Time:** To show the present tdate/time.



< Client Menu >

- ▶ **Client Information:** To show patient information from client(patient monitor).
(Bed number: Unit name, Patient name)
- ▶ **Alarm Alert:** To make sound for attention and show what parameter has problem.
- ▶ **Recording Time:** To show how long the patient information is being saved.
- ▶ **Basic Menu:**



: To Admit/Discharge patient information from each patient monitor.
(After setting up the “Admit”, Record start button will be activated.)



: Recording function is not being used.
(Click this button, Recording will start.)



: Recording function is being used.
(Click this button, recording will stop.)

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: Alarm sound is "ON".

(Click this button, alarm sound function will be deactivated.)



: Alarm sound is "OFF".

(Click this button, alarm sound function will be activated.)



: To enlarge the present view (display).

(Click this button, client view will be enlarged at bottom like 2 channel view except for 2 ch and 32 ch display.)



: To set up the client environment.

► **Display waveforms:** To show waveforms (biosignal) from patient.

(If you want to see the other waveforms, click the parameter of which you want to monitor)

► **Display parameters:** To display parameters from patient.

※ Display type of waveforms & parameters will depend on the number of channels.

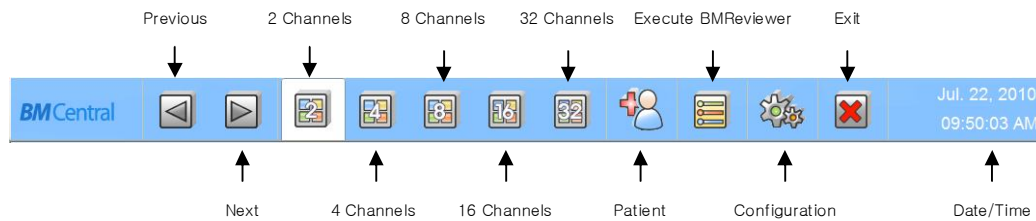
(Specific display will be shown by setting up the client environment.)

2-2. Operation of main and client menu.

2-2.1 To manage patient information

◆ To call up “Register Patient information”.

(1) Click “Patient” button.



(2) You may see “patient manager” window as follows.

[illegible]

< Patient Manager>

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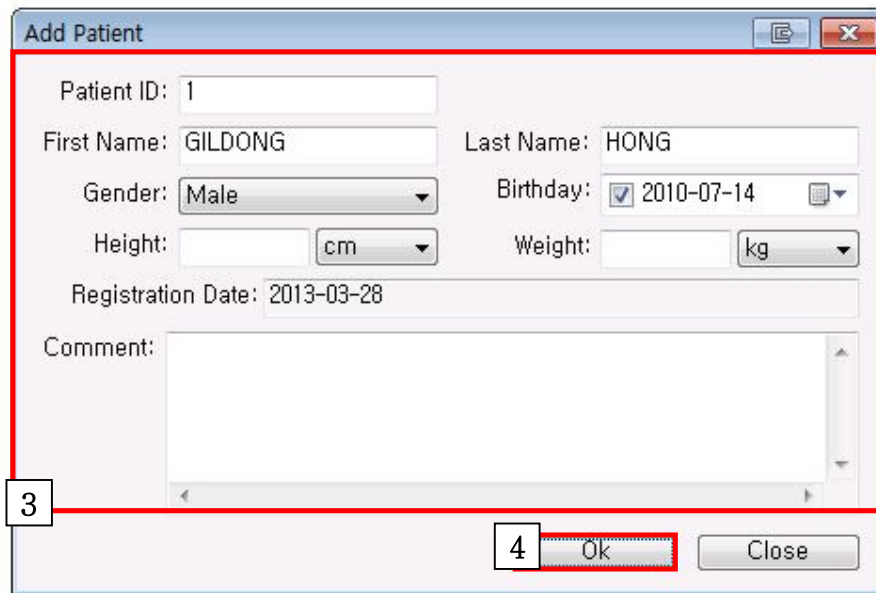
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◆ To register new patient information

- (1) Open "Patient Manager".
- (2) Click "Add New" button.

[illegible]

- (3) Input the patient information (Input the Name in English)
- (4) If you finish registration of patient information, click “O.K”.



The screenshot shows a Windows-style dialog box titled "Add Patient". It contains the following fields and controls:

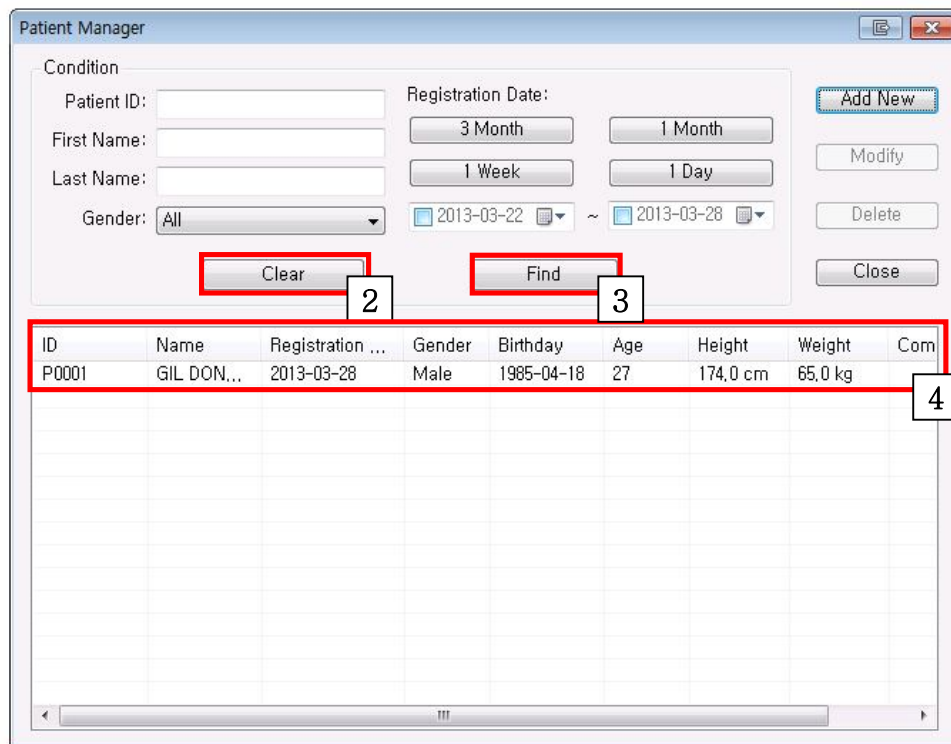
- Patient ID: 1
- First Name: GILDONG
- Last Name: HONG
- Gender: Male (dropdown menu)
- Birthday: 2010-07-14 (calendar icon)
- Height: (text field) cm (dropdown menu)
- Weight: (text field) kg (dropdown menu)
- Registration Date: 2013-03-28
- Comment: (text area)
- Buttons: Ok (highlighted with a red box and labeled '4'), Close

A red box outlines the entire dialog box, which is labeled with a '3' in a box.

◆ To retrieve patient information

A. To show all patient information.

- (1) Open "Patient Manager".
- (2) Click "Clear" button and release condition.
- (3) Click "Find" button and retrieve patient information.
- (4) List will be shown as follows.

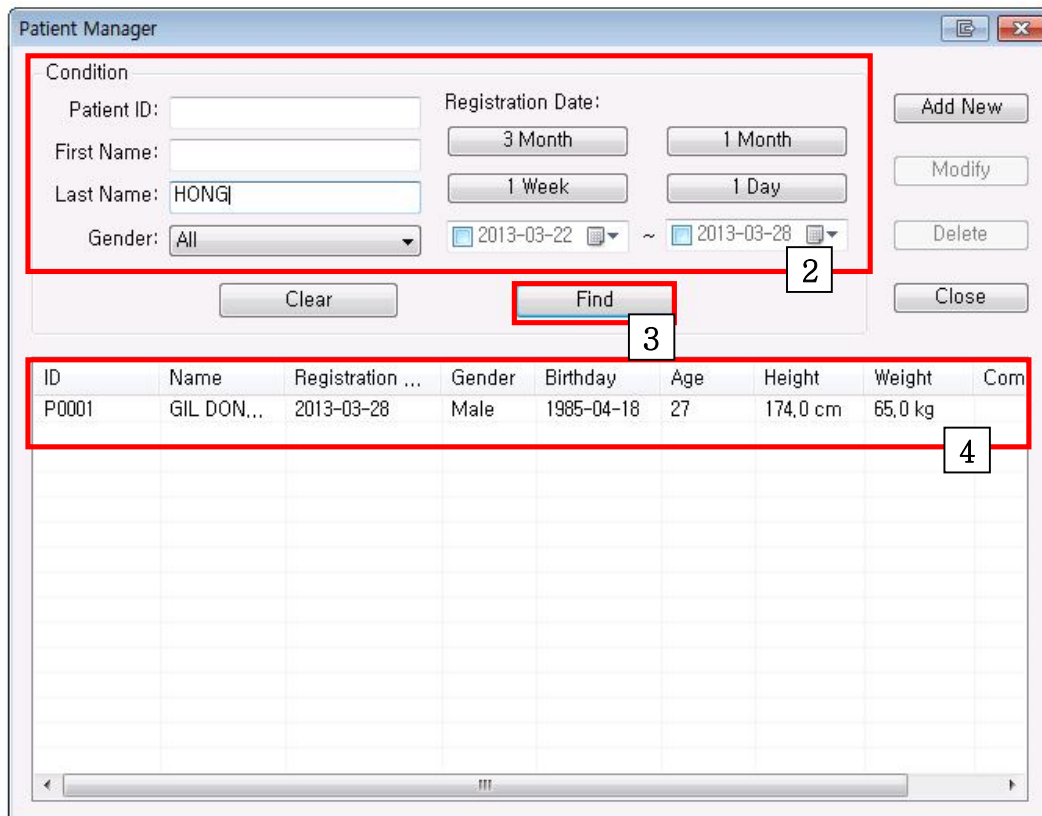


The screenshot shows the 'Patient Manager' window. It has a search section with fields for Patient ID, First Name, Last Name, Gender (set to 'All'), and Registration Date (with date range buttons: 3 Month, 1 Month, 1 Week, 1 Day). There are 'Clear' and 'Find' buttons. Below the search section is a table with patient information. The 'Clear' button is labeled with a '2' and the 'Find' button with a '3'. The table has columns: ID, Name, Registration ..., Gender, Birthday, Age, Height, Weight, and Com. The first row of the table is highlighted with a red box and labeled with a '4'.

ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	Com
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174,0 cm	65,0 kg	

B . To search specific patient

- (1) Open "Patient Manager".
- (2) Input the specific patient information in conditions.
- (3) Click "Find" button.
- (4) You may see patient as follows.



The screenshot shows the 'Patient Manager' window. A red box labeled '2' highlights the search criteria section, which includes fields for Patient ID, First Name, Last Name (containing 'HONG'), Gender (set to 'All'), and Registration Date (with buttons for 3 Month, 1 Month, 1 Week, 1 Day, and a date range from 2013-03-22 to 2013-03-28). Below this, a 'Find' button is highlighted with a red box and labeled '3'. The results table below is highlighted with a red box and labeled '4'. The table contains one row of patient data.

ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	Com
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174.0 cm	65.0 kg	

◆ To delete patient information

- (1) Open "Patient Manager".
- (2) Input the specific patient information in conditions.
- (3) Click "patient information on the list.
- (4) Click "Delete" button as follows.

Condition

Patient ID:

First Name:

Last Name: HONG

Gender: All

Registration Date:

3 Month 1 Month

1 Week 1 Day

2013-03-22 ~ 2013-03-28

Clear Find

Add New

Modify

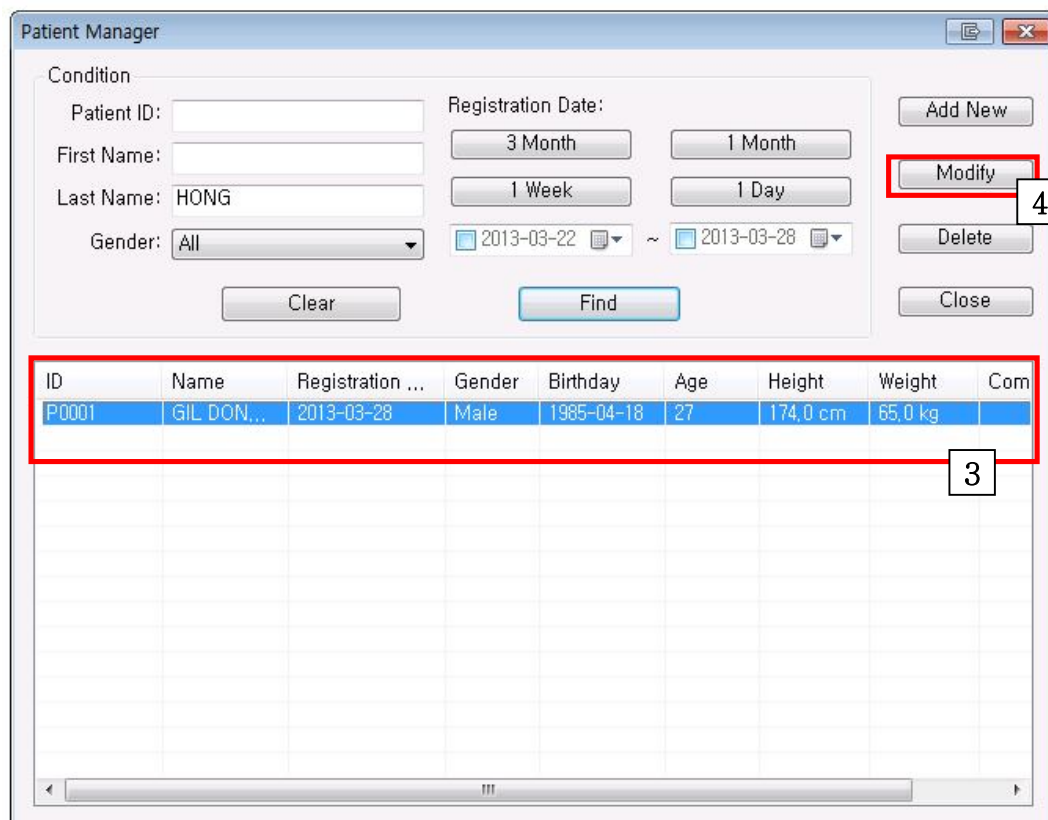
Delete

Close

ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	Com
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174.0 cm	65.0 kg	

◆ To change the patient information.

- (1) Open "Patient Manager".
- (2) Find a specific patient information.
- (3) Click "patient information" on the list.
- (4) Click "Modify" button and open "Modify Patient".



Patient Manager

Condition

Patient ID:

First Name:

Last Name:

Gender:

Registration Date:

~

ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	Com
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174.0 cm	65.0 kg	

Modify Patient

5

Patient ID: P0001

First Name: HONG Last Name: GIL DONG

Gender: Male Birthday: 1985-04-18

Height: 174.0 cm Weight: 65.0 kg

Registration Date: 2013-03-28

Comment:

6

Ok Close

(5) Change the patient information.

(6) Click "OK" button to save.

2-2.2 Admit / Discharge

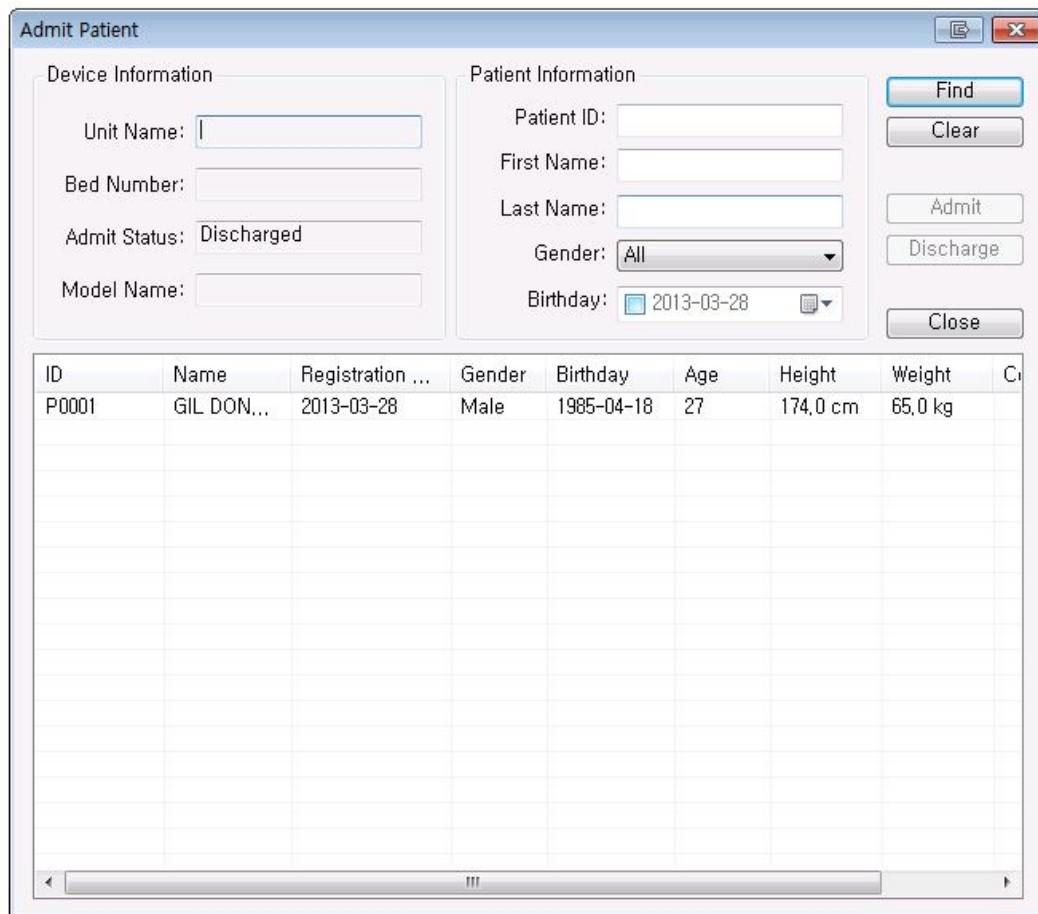
◆ Open "Admit/Discharge "

- (1) Click "Admit/Discharge" button from client menu.



(Admit/Discharge button)

- (2) "Admit/Discharge" will be popped up as follows.



ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	C
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174.0 cm	65.0 kg	

< Admit/Discharge >

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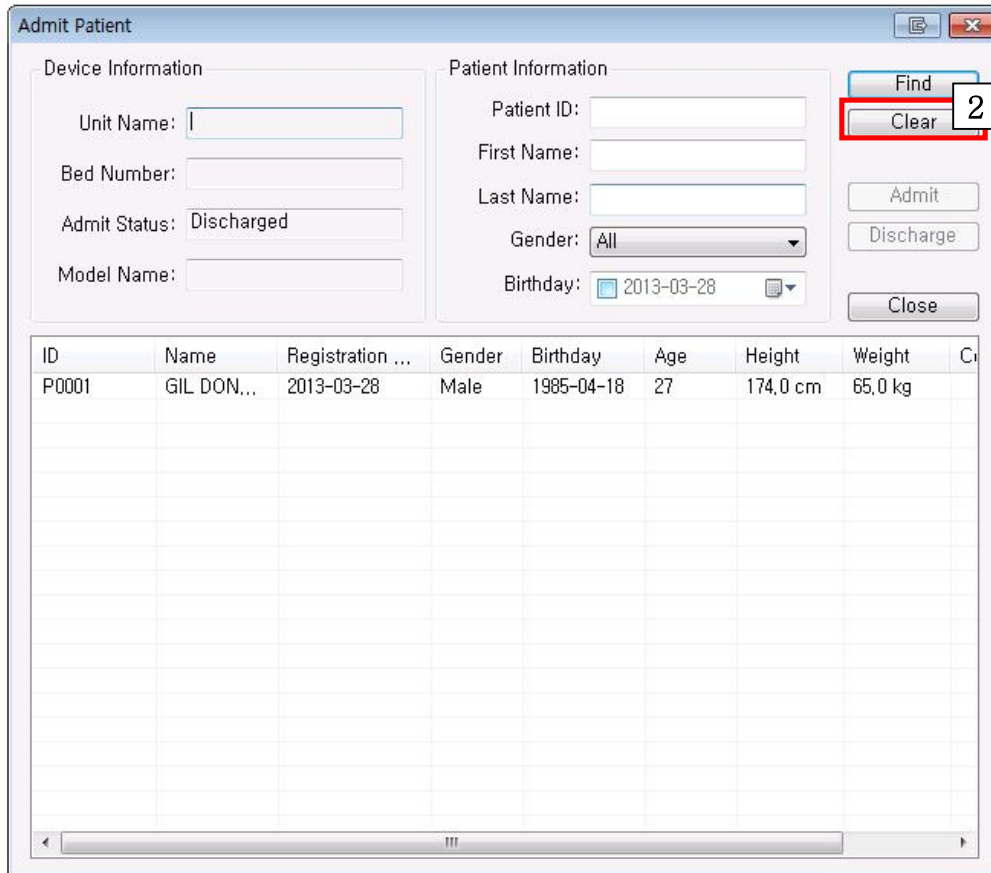
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◆ To Admit patient information from client menu.

(1) Open " Admit/Discharge ".

(2) Input "Patient Information" and click "Find" button.

(If you want to see all registered patient information, click "Clear" button, and "Find" button. Then, you may see all registered patient information as follows.)



ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	C
P0001	GIL DON...	2013-03-28	Male	1985-04-18	27	174.0 cm	65.0 kg	

(3) Find patient information of which you want to admit from the list and then, select it.

(4) Click "Admit" button.

Admit Patient

Device Information

Unit Name:

Bed Number:

Admit Status:

Model Name:

Patient Information

Patient ID:

First Name:

Last Name:

Gender:

Birthday:

Find

Clear

Admit

Discharge

Close

ID	Name	Registration ...	Gender	Birthday	Age	Height	Weight	C
P0001	GIL DON,...	2013-03-28	Male	1985-04-18	27	174,0 cm	65,0 kg	

(5) If "Do you want to admit this patient?" is popped up, click "Yes" button.

BMCentral

Do you want to admit this patient?

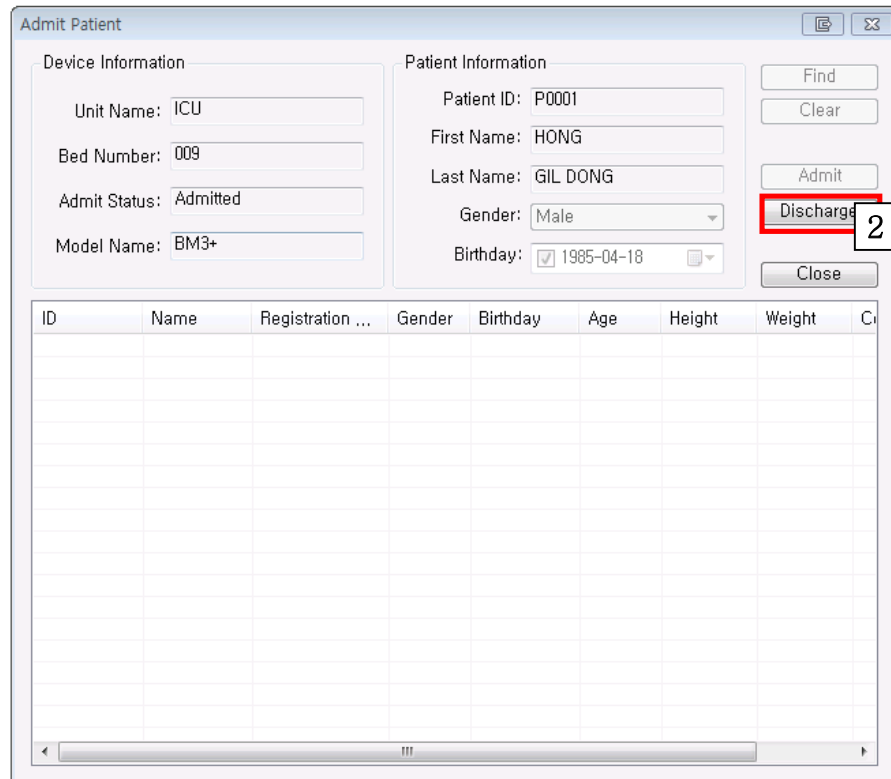
Yes No

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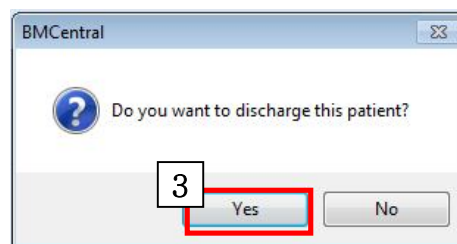
◆ To Discharge patient information from client menu.

- (1) Open "Admit/Discharge".
- (2) After inputting patient information on "Admit Patient" and click "Discharge" button.



The 'Admit Patient' dialog box contains two main sections: 'Device Information' and 'Patient Information'. The 'Device Information' section includes fields for Unit Name (ICU), Bed Number (009), Admit Status (Admitted), and Model Name (BM3+). The 'Patient Information' section includes fields for Patient ID (P0001), First Name (HONG), Last Name (GIL DONG), Gender (Male), and Birthday (1985-04-18). On the right side, there are buttons for Find, Clear, Admit, Discharge, and Close. The 'Discharge' button is highlighted with a red box and a callout '2'.

- (3) If "Do you want to discharge this patient?" is popped up, click "Yes"



The 'Do you want to discharge this patient?' dialog box is a small window with a question mark icon and the text 'Do you want to discharge this patient?'. It has two buttons: 'Yes' and 'No'. The 'Yes' button is highlighted with a red box and a callout '3'.

2-2.3 Record Start / Stop

◆ Record Start

(1) Click "Record Start" button from client menu.

(Note: Recording function is only available in "Admit condition".)



(Start button for recording)

◆ Record Stop

(1) Click "Record Stop" button from client menu.

(Note: Saved files can be shown by "Reviewer" from main menu.)



(Quit button for recording)

※ Recording time has to be longer than 10 seconds.

2-2.4. Alarm Sound On / Off

◆ Alarm Sound On/Off

(1) Click "Alarm Sound" button.



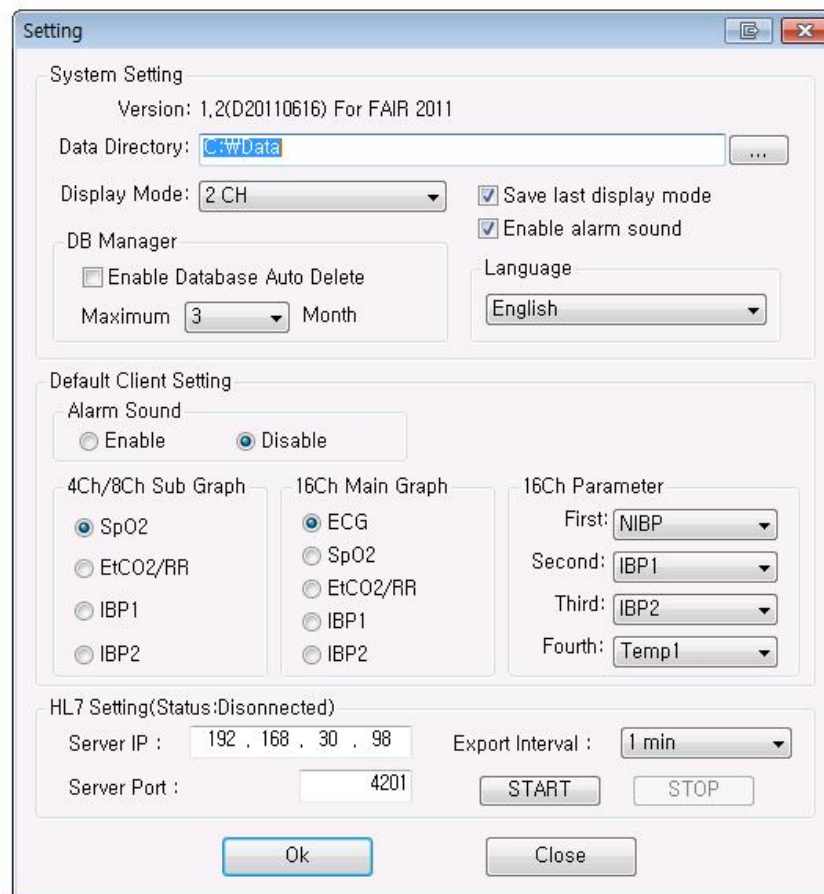
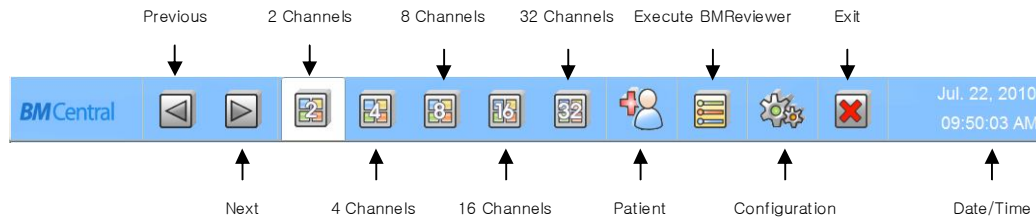
(Alarm sound "ON")



(Alarm sound "OFF")

2-2.5 To set up Automatic Database deletion.

◆ To open “Configuration” from main menu.



< Settings >

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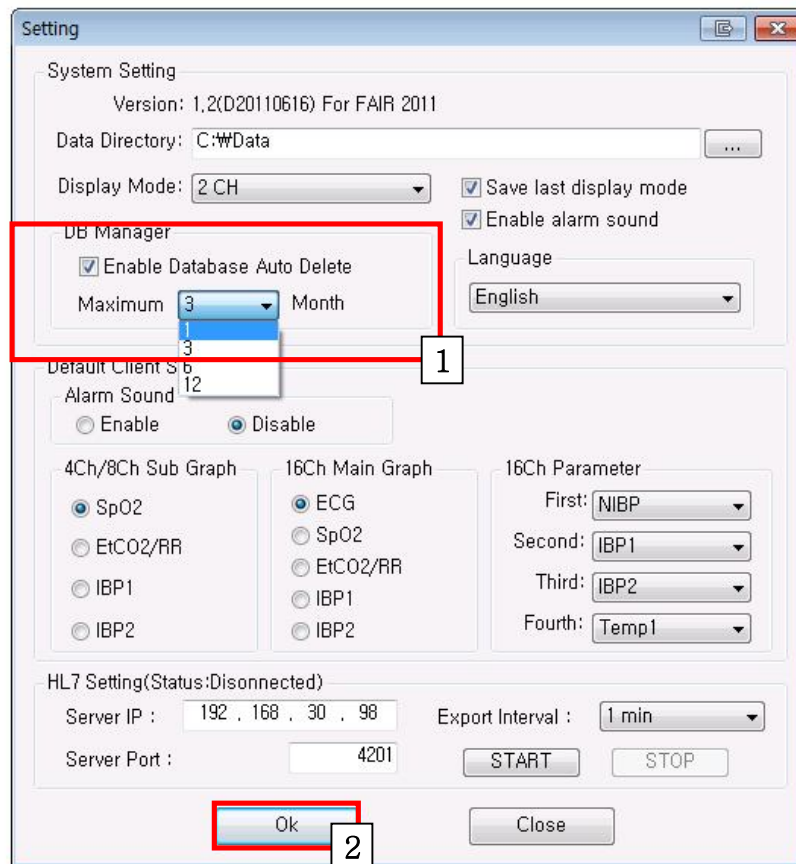
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◆ To set up automatic database deletion

(1) Check "Enable DB Auto Del" from DB manager from "Settings" and select number of month.

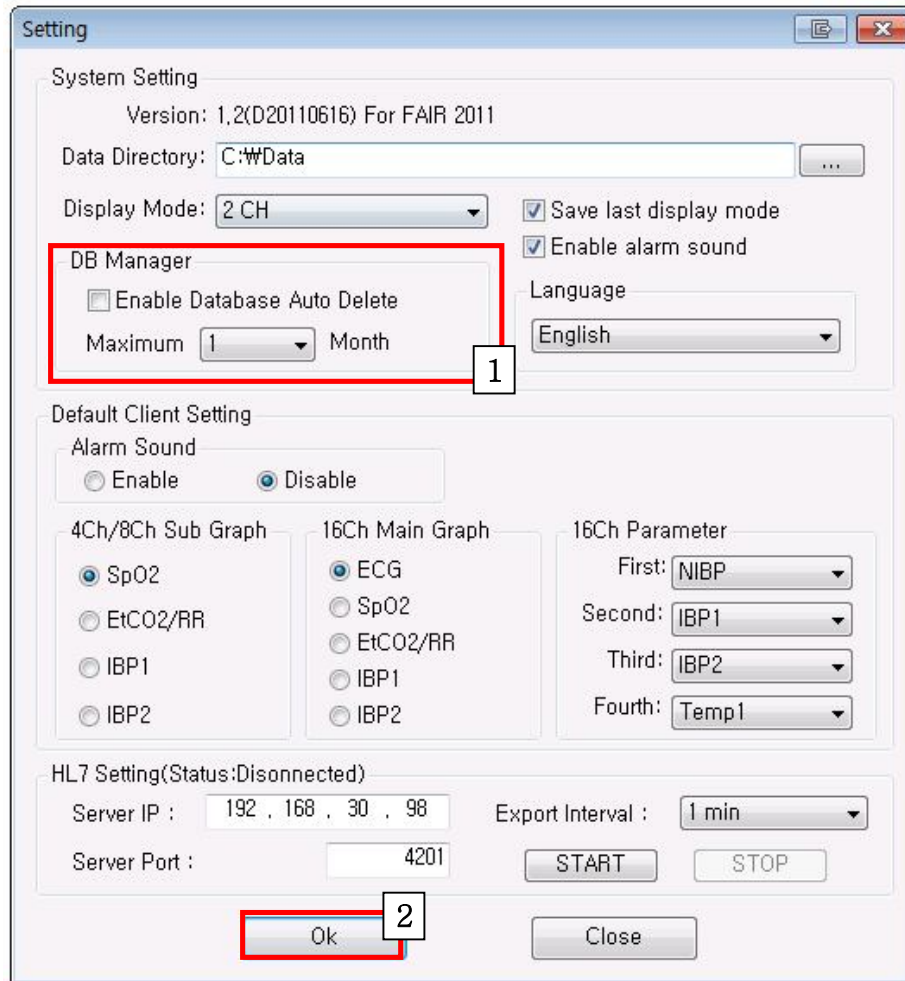
(For example: if you select "1", all data will be deleted except for 1 month before from now.)

(2) Click "OK" button

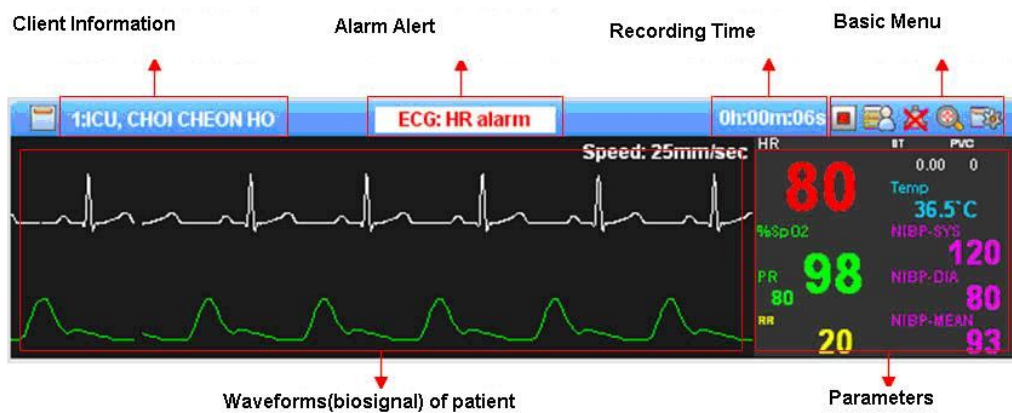


◆ To release automatic database deletion

- (1) Click "DB Auto Delete" and remove check mark
- (2) Click "O.K"



2-2.6 To change alarm sound from patient monitor with client menu.



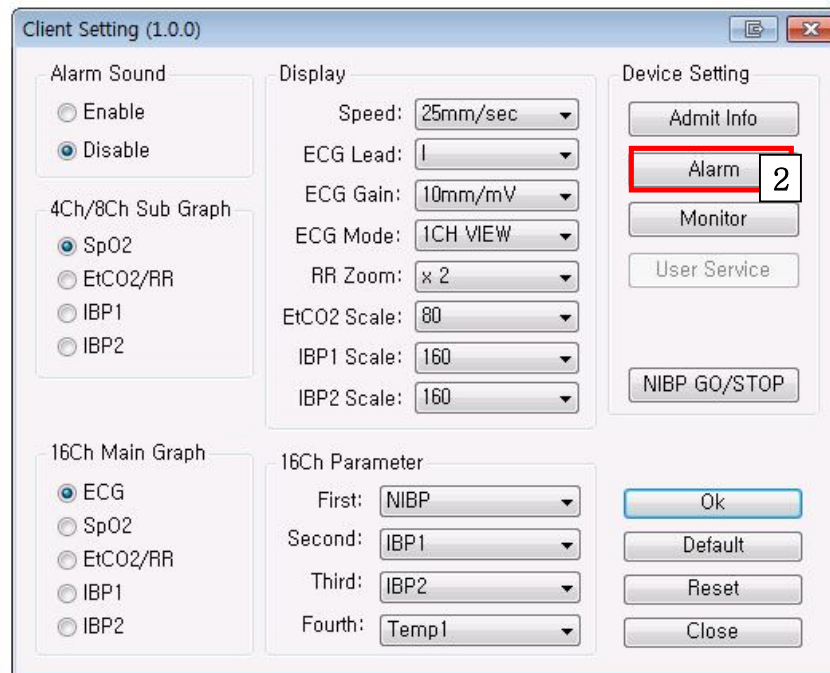
◆ To remote control parameters with client menu.

(1) Click “Client Settings” from client menu.



(Client Settings Icon)

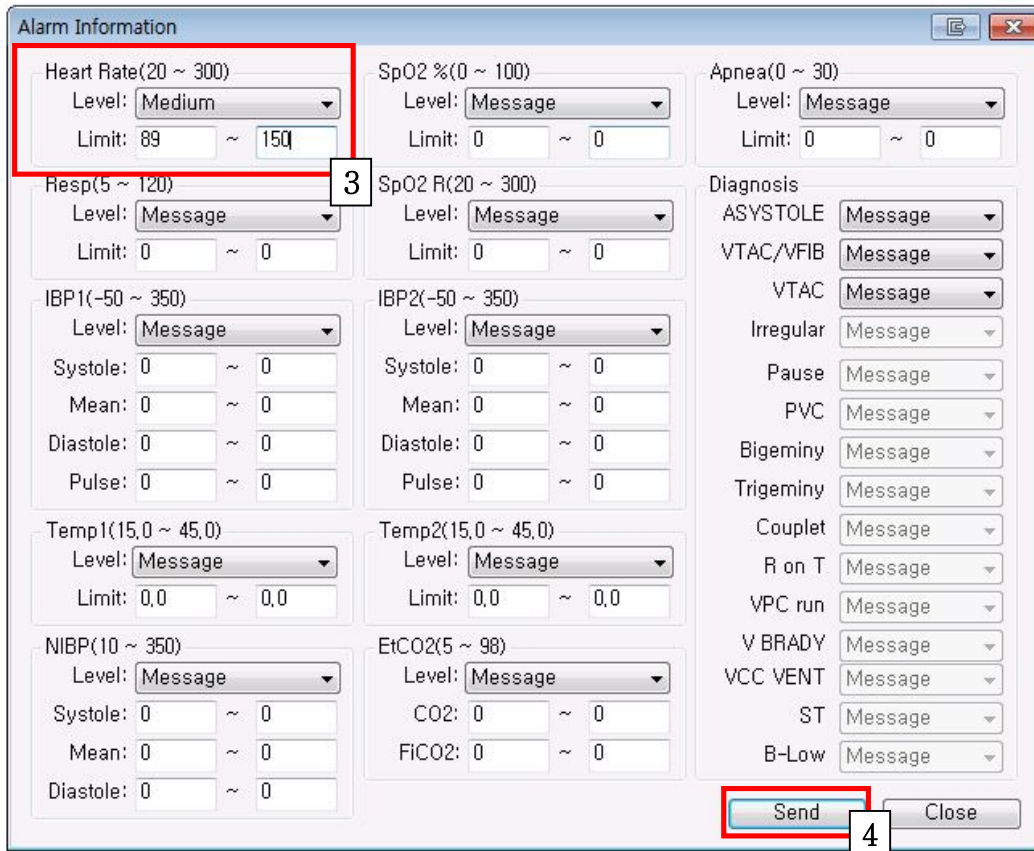
(2) Click "Alarm" button.



(3) Change the alarm limitation from "Alarm Information" as follows.

(4) Click "Send" button and apply modified Alarm limitation.

(Note: Patient monitor should be connected to BMCentral.)



Alarm Information

Heart Rate(20 ~ 300)
Level: Medium
Limit: 89 ~ 150

SpO2 %(0 ~ 100)
Level: Message
Limit: 0 ~ 0

Apnea(0 ~ 30)
Level: Message
Limit: 0 ~ 0

Resp(5 ~ 120)
Level: Message
Limit: 0 ~ 0

SpO2 R(20 ~ 300)
Level: Message
Limit: 0 ~ 0

Diagnosis
ASYSTOLE Message
VTAC/VFIB Message
VTAC Message
Irregular Message
Pause Message
PVC Message
Bigeminy Message
Trigeminy Message
Couplet Message
R on T Message
VPC run Message
V BRADY Message
VCC VENT Message
ST Message
B-Low Message

IBP1(-50 ~ 350)
Level: Message
Systole: 0 ~ 0
Mean: 0 ~ 0
Diastole: 0 ~ 0
Pulse: 0 ~ 0

IBP2(-50 ~ 350)
Level: Message
Systole: 0 ~ 0
Mean: 0 ~ 0
Diastole: 0 ~ 0
Pulse: 0 ~ 0

Temp1(15.0 ~ 45.0)
Level: Message
Limit: 0.0 ~ 0.0

Temp2(15.0 ~ 45.0)
Level: Message
Limit: 0.0 ~ 0.0

NIBP(10 ~ 350)
Level: Message
Systole: 0 ~ 0
Mean: 0 ~ 0
Diastole: 0 ~ 0

EtCO2(5 ~ 98)
Level: Message
CO2: 0 ~ 0
FICO2: 0 ~ 0

Send Close

2-2.7 To control NIBP from patient monitor with client menu.

◆ To remote control NIBP Start and Stop.

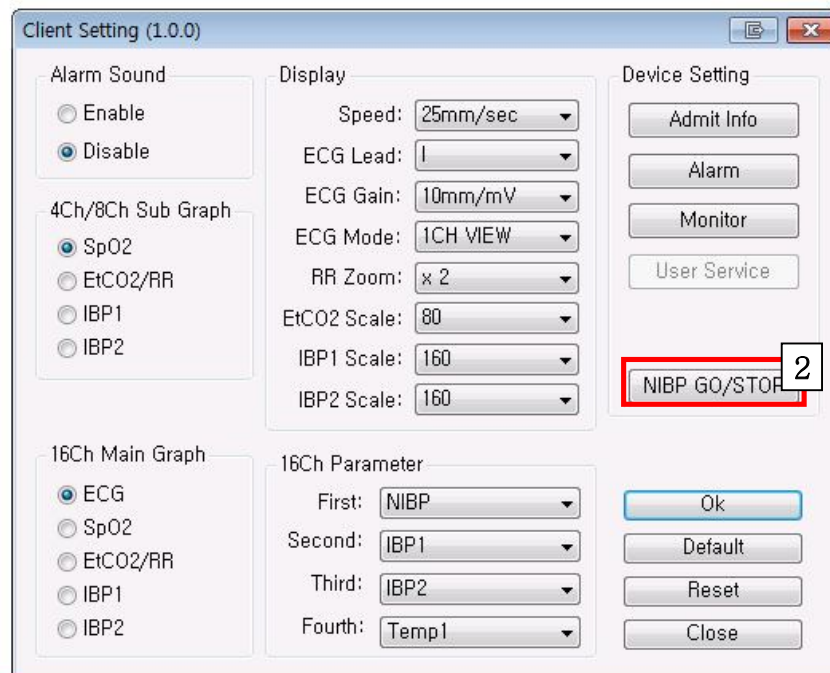
(1) Click "Client Settings" from client menu.



(Client Settings Icon)

(2) Click "NIBP GO/STOP" button.

(The handling method is a toggle type which stops the NIBP function by pressing the button during running state and starts the NIBP function by pressing the button during stop state.)



2-2.8 To change ECG view mode with client menu.

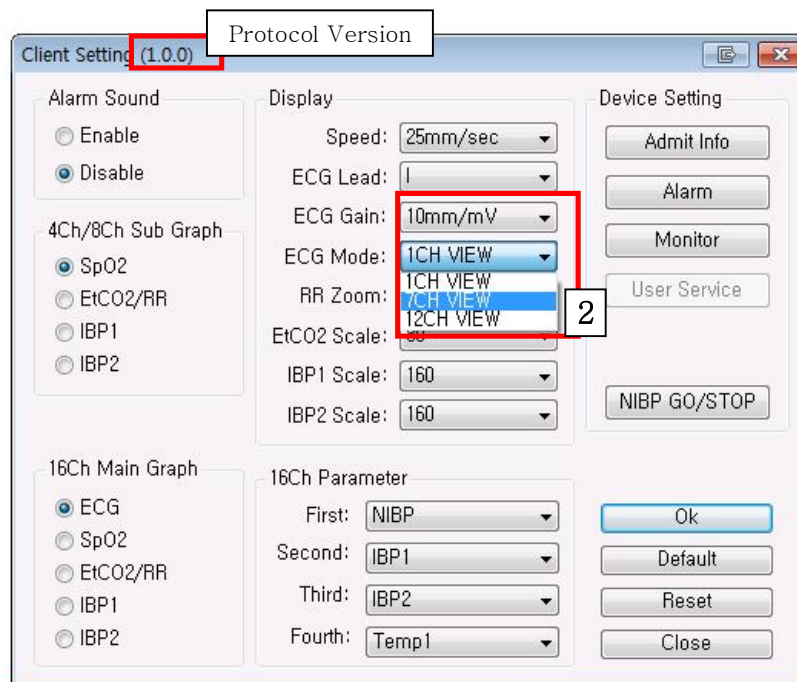
◆ To change ECG view mode

* This function is only applied into the Protocol ver 1.2.0; The function is only able to be showed in a 2 channel mode and the enlarge mode of any other channel modes.

(1) Click “Client Settings” from client menu.



(Client Settings Icon)



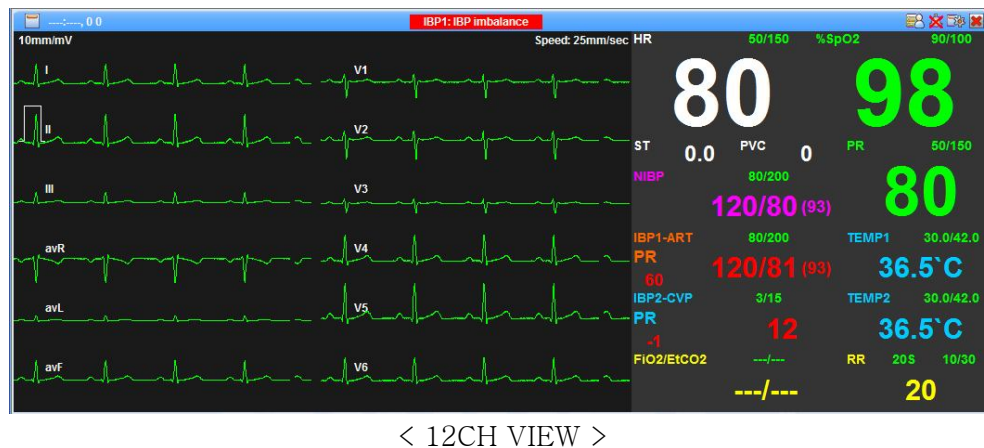
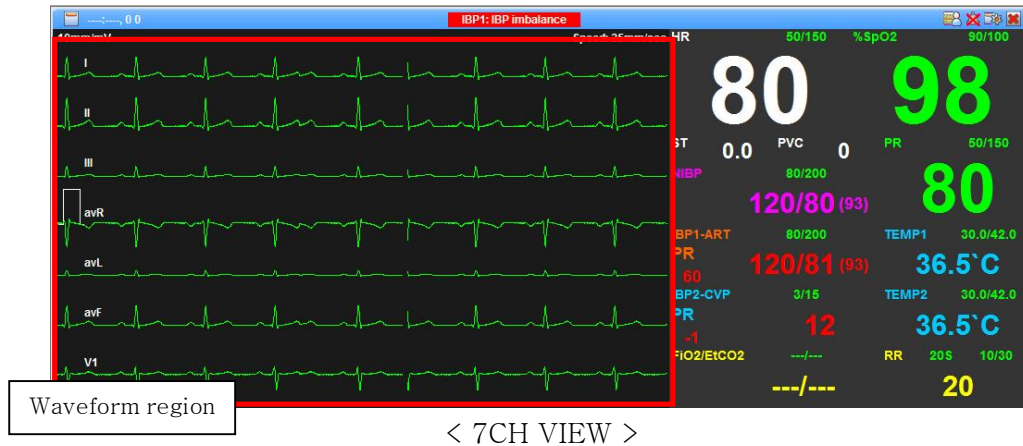
(2) View mode is changed by pressing the OK button, after selecting view mode intended to be showed.

This does not affect the devices' display mode.

The other way to apply above function is double clicking of the “**waveform region**” which is could be seen in the next page.

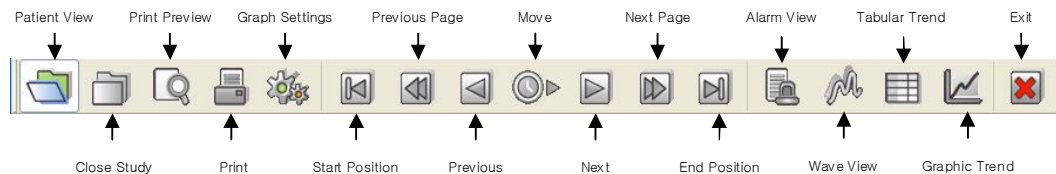
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Section 3. BMReviewer Operation

3-1. Basic function of BMReviewer menu



- ▶ **Patient View:** To call up the save list from DB.
- ▶ **Close Study:** To close the called-up-files.
- ▶ **Print Preview:** To check out the layout before printing out.
- ▶ **Print:** To print out the files.
- ▶ **Graph Settings:** To set up the environment of Reviewer.
- ▶ **Start Position, Previous Page, Previous, Move, Next, Next Page, End Position**
: To shift the present record data to back and forth.
- ▶ **Alarm view:** To track alarm, graphs , parameters when alarm sounds happens.
- ▶ **Wave view:** To track graphs, parameters.
- ▶ **Tabular Trend:** To track parameters and alarms on the tabular trend.
- ▶ **Graphic Trend:** To track the trend of parameters as graphs
.
- ▶ **Exit:** Quit reviewer.

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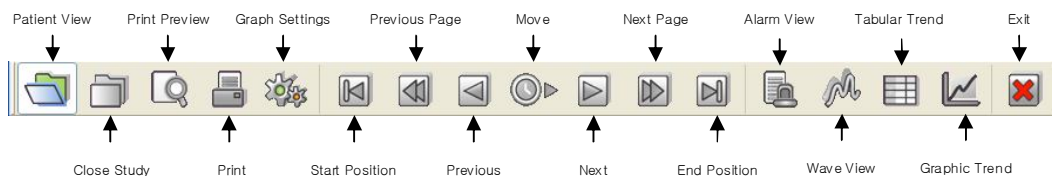
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3-2. Basic Operation

3-2.1 File open/close

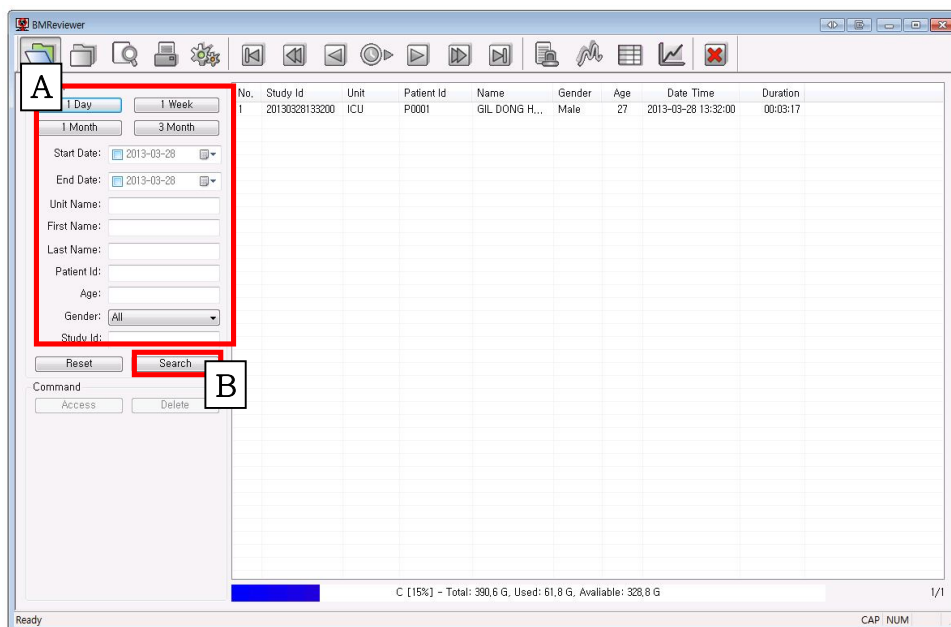
◆ File open

(1) Click "Patient View" button.

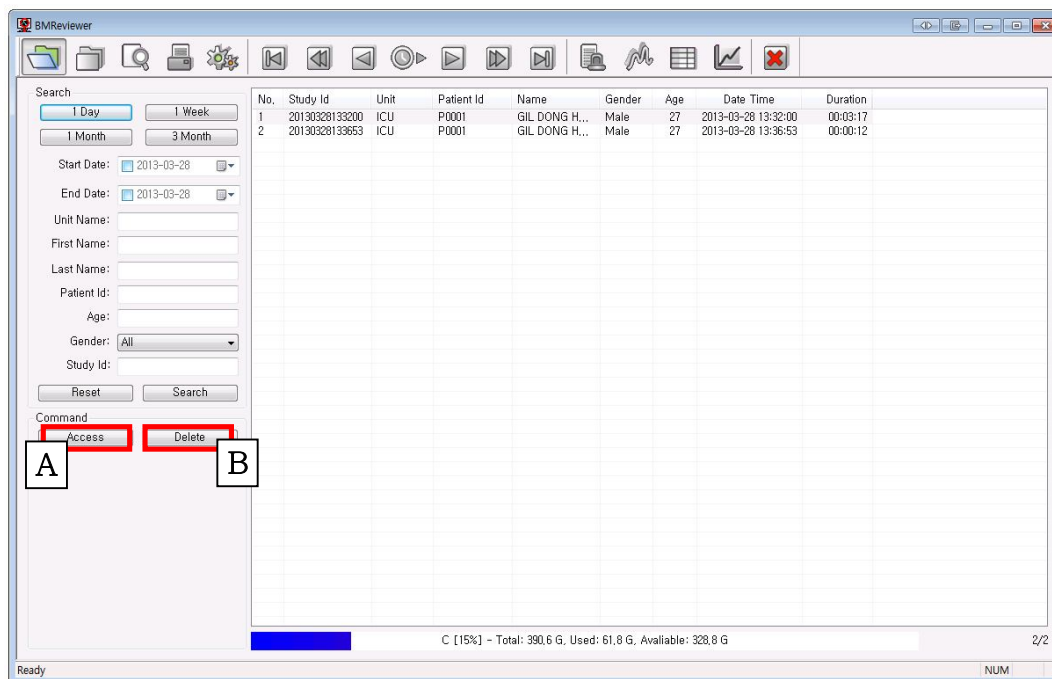


(2) Search the list.

※ If you want to find a specific information, input a specific information and click "(A)" and click "Search" button (B).

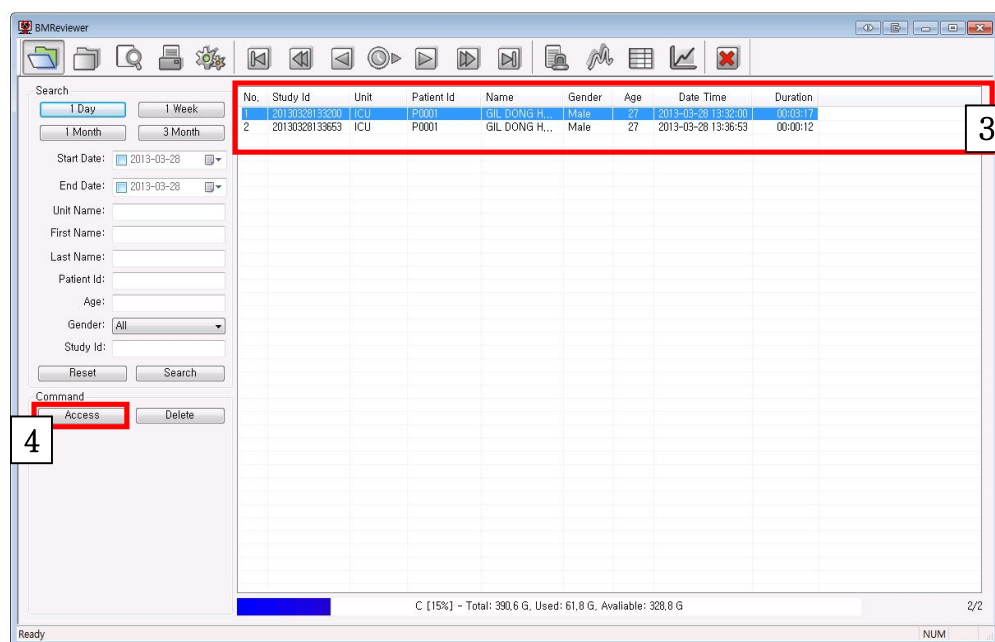


※ If you want to find all files, click "Reset" button (A) and "Search" button (B) as follows.



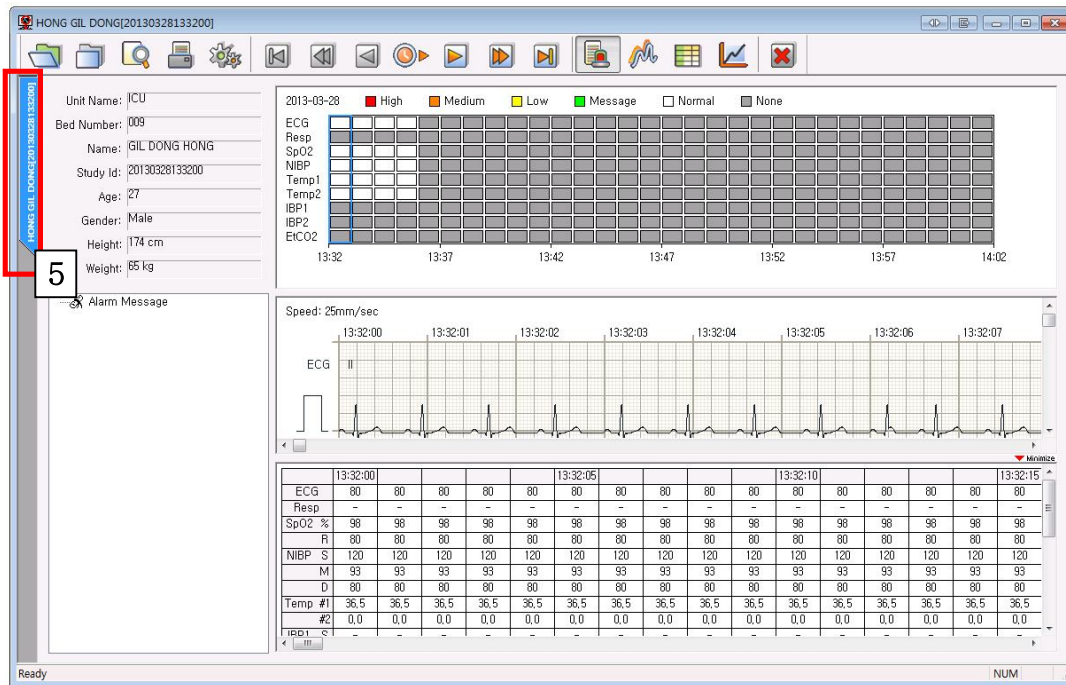
(3) Find a file among the list and select the file.

(4) Click "Access" button and open the file.

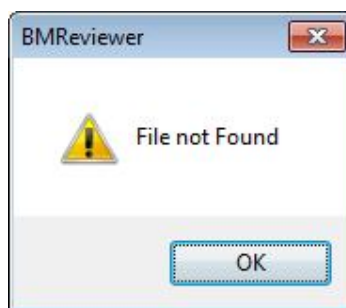


(5) If you open the file successfully, you may see a folder (See below figure and number “5”) at left side as follows.

(Note: default display is "Alarm view" as below.)



- ✧ If there is no file you searched, below message will be popped up.
- ✧ Please check out the path of file again.

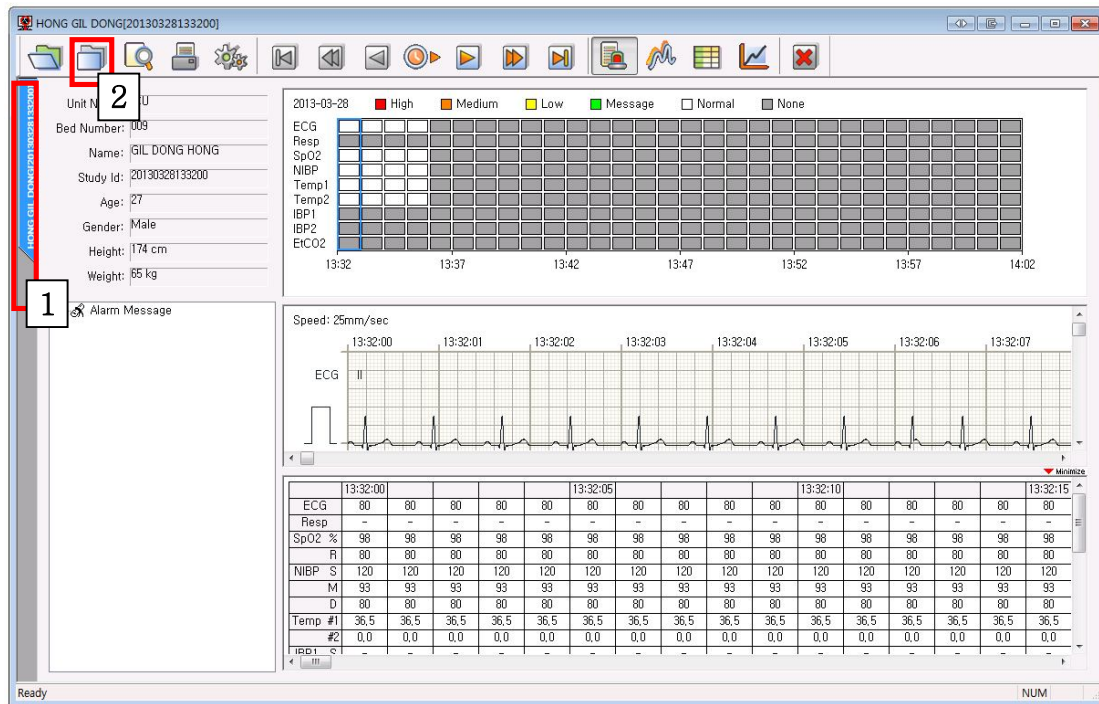


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◆ File close

- (1) Select the file of which you want to close as below.
- (2) Click "close file" button.



3-2.2 To delete file

◆ To delete file.

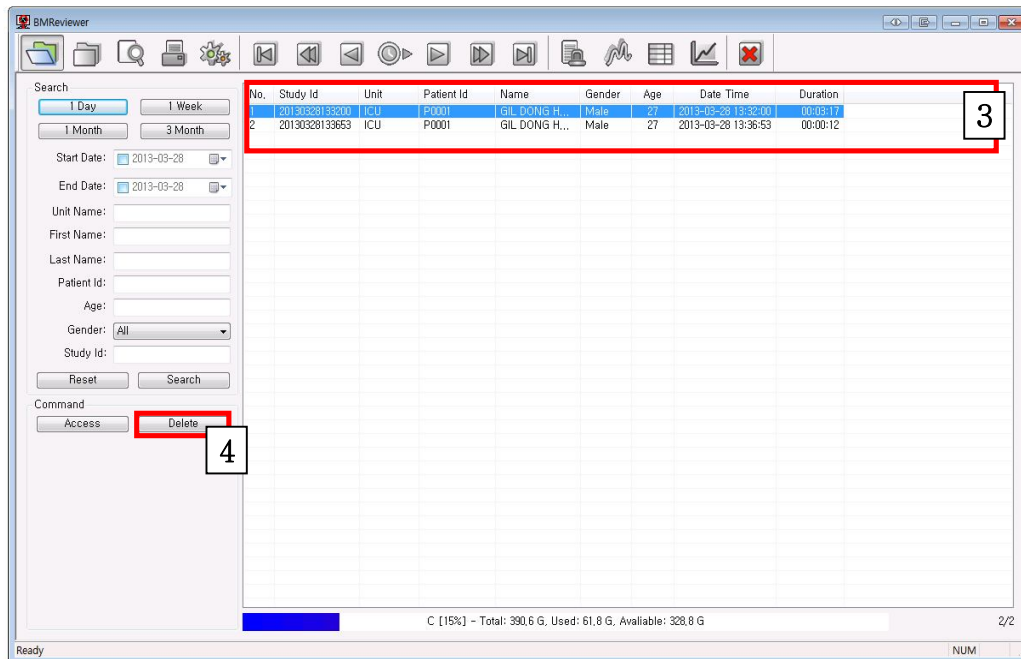
(1) Click "Patient View" button.

(2) Find the list.

(3) Select files you want to remove.

(4) Click "Delete" button.

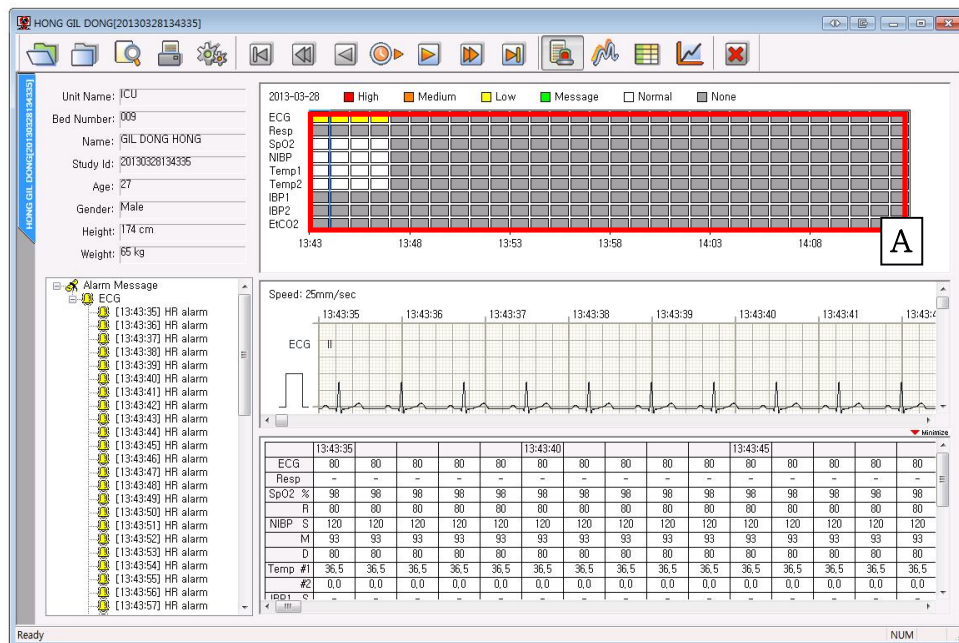
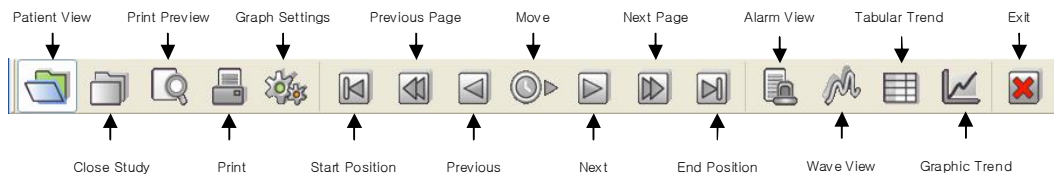
(Note: once you delete file, you can not open that file any more.)



3-2.3. To monitor various views

◆ Alarm View

(1) Click "Alarm view" button.



<Features>

- Easy to check out alarm information, waveforms, parameters.
- Scroll function. (Wheel scroll function is available.)

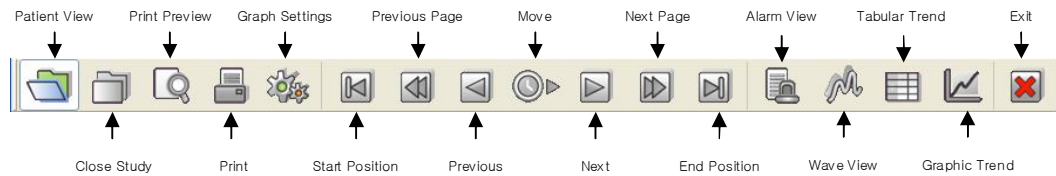
A. It can show alarm state of each parameters. Click “red square”, then you can track and shift the alarm state every minute. (Please see above figure.)

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◆ Wave View

(1) Click "Wave view" button.



<Feature>

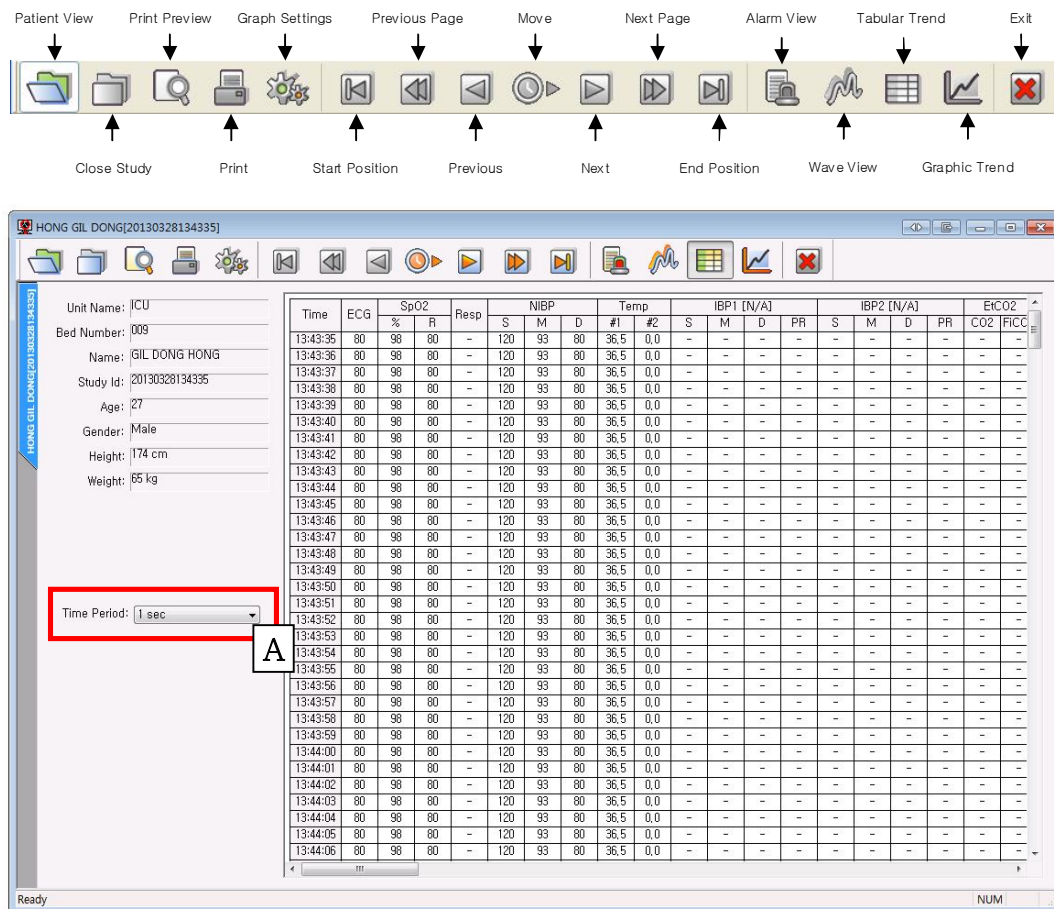
- Monitor waveforms and values of parameters.
- Scroll function. (Wheel scroll function is available.)

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◆ Tabular Trend View

(1) Click "Tabular Trend" button.



<Feature>

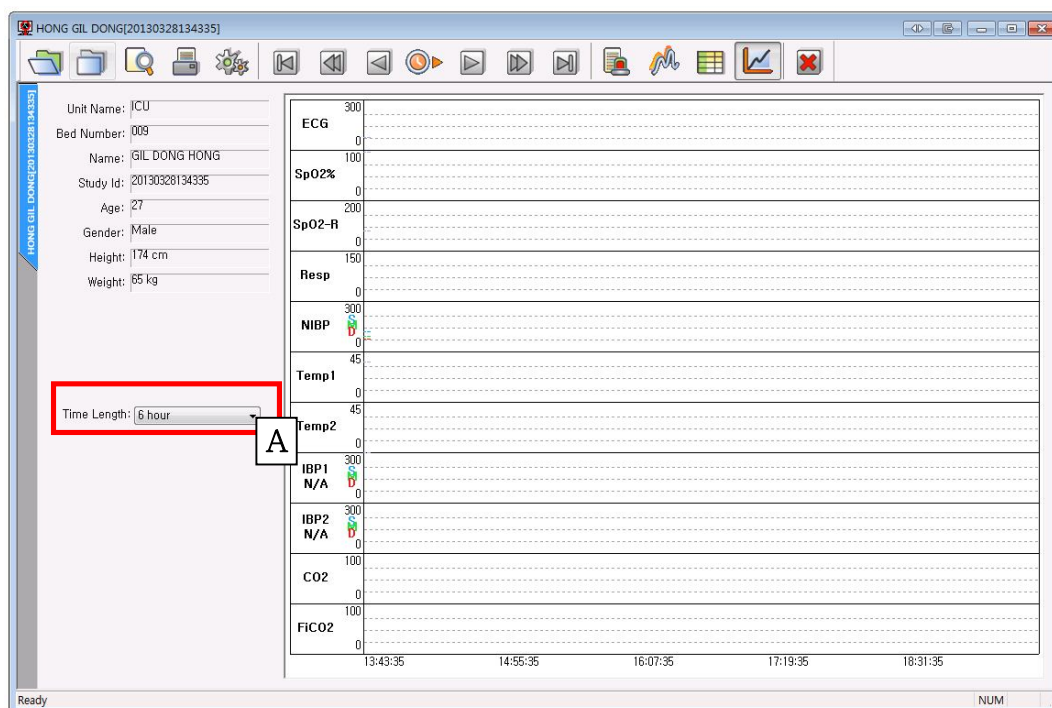
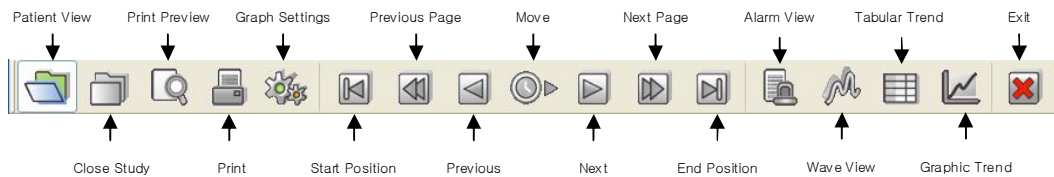
- Monitor values of each parameters and alarm state with a tabular statement.
- Scroll function. (Wheel scroll function is available.)

A. If you click “Time Period”, you can change the time interval.

(1 Sec, 10 Sec, 30 Sec, 1 Min, 5 Min, 10 Min)

◆ Graphic Trend View

(1) Click "Graphic Trend" button.



<Feature>

– Monitor information on parameters as a graph type.

A. If you click “Time Length”, you can change time interval.

(10 Min, 30 Min, 60 Min, 90 Min, 3 hour, 6 hour)

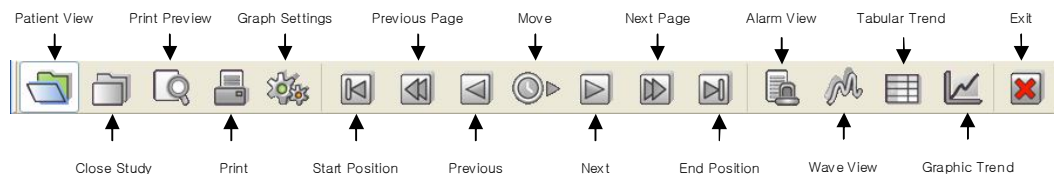
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3-2.4 Preview/ Print out

◆ Preview

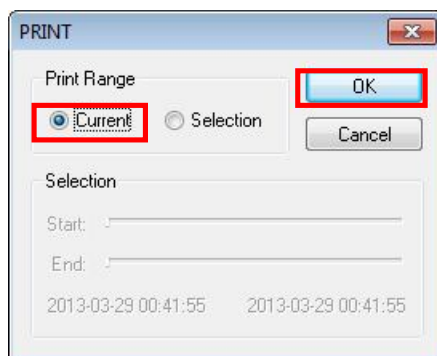
(1) Click "Print Preview" button.



(2) You can assign the range of preview for "Wave View" and "Tabular Trend".

※ If you want to print out current information on the screen,

A. Select "Current" and click "OK" button.

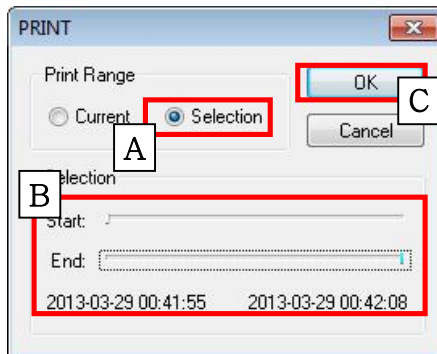


※ If you want to print out a specific area,

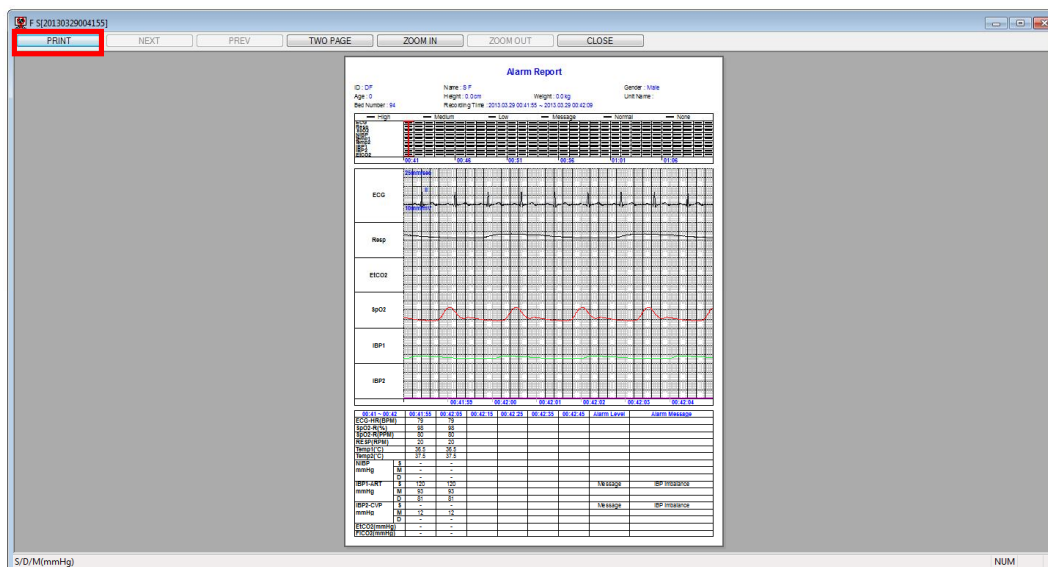
A. Select and click "Selection".

B. Specify "start" and "end" time.

C. Click "OK" button.



(3) If you want to print out something at preview screen, click “print” button.

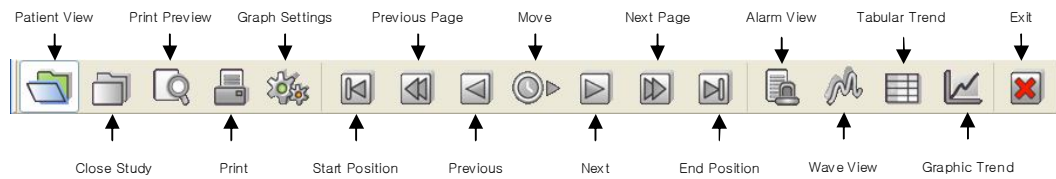


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◆ To print out

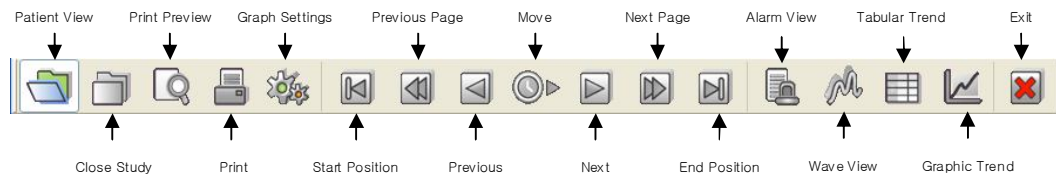
(1) Click "Print" button.



(2) You can assign the range of preview for "Wave View" and "Tabular Trend".
(Please refer to procedures of preview.)

3-3. BMReviewer Settings

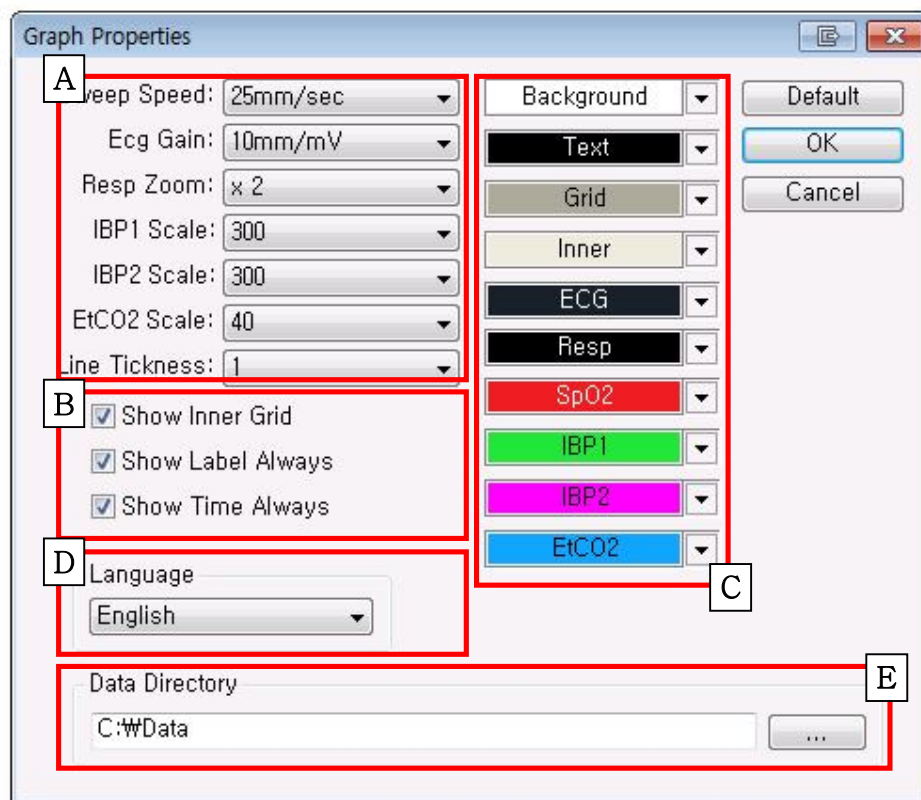
(1) Click "Graph Settings" button.



(2) "Graph Properties" will be popped up as below.

(3) After changing the values of each properties, click "OK" button.

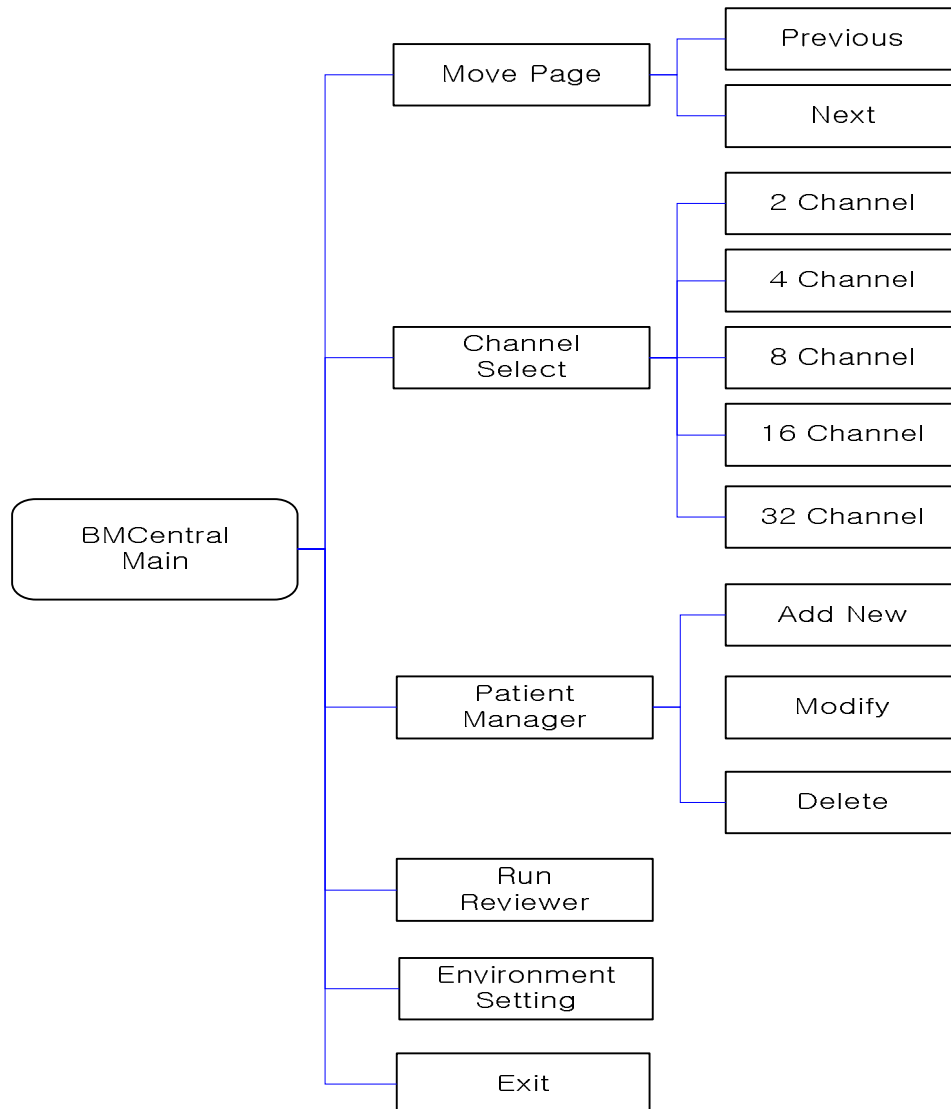
(If you want to return it as a default, click "Default" button and select "O.K" button.)



- A. To change waveform information.
- B. To show grid, label and time.
- C. To specify each lines in various colors..
- D. To change program language.
- E. To change data directory.

Section 4. Appendix

4-1. BMCentral Main Menu (Function) Tree

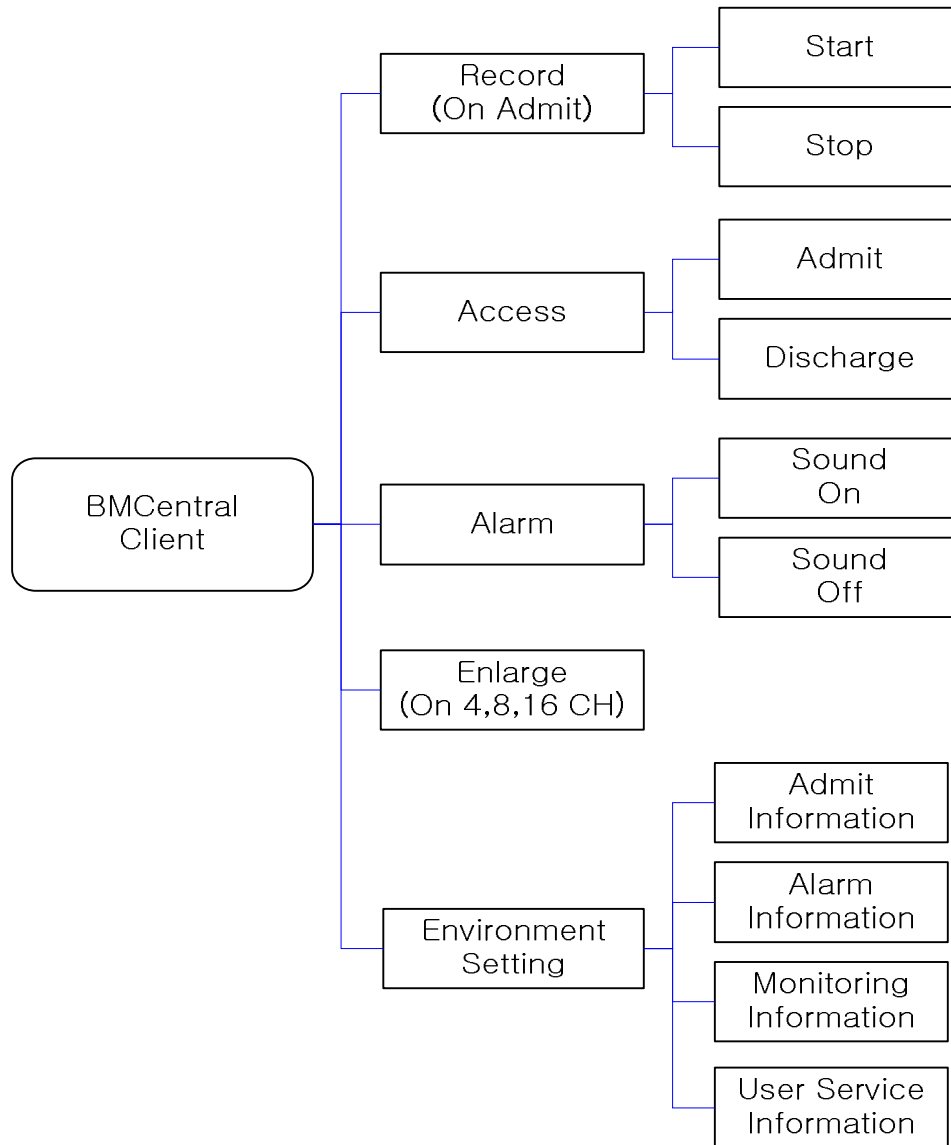


< BMCentral Main Menu >

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4-2. BMCentral Client Menu (Function) Tree

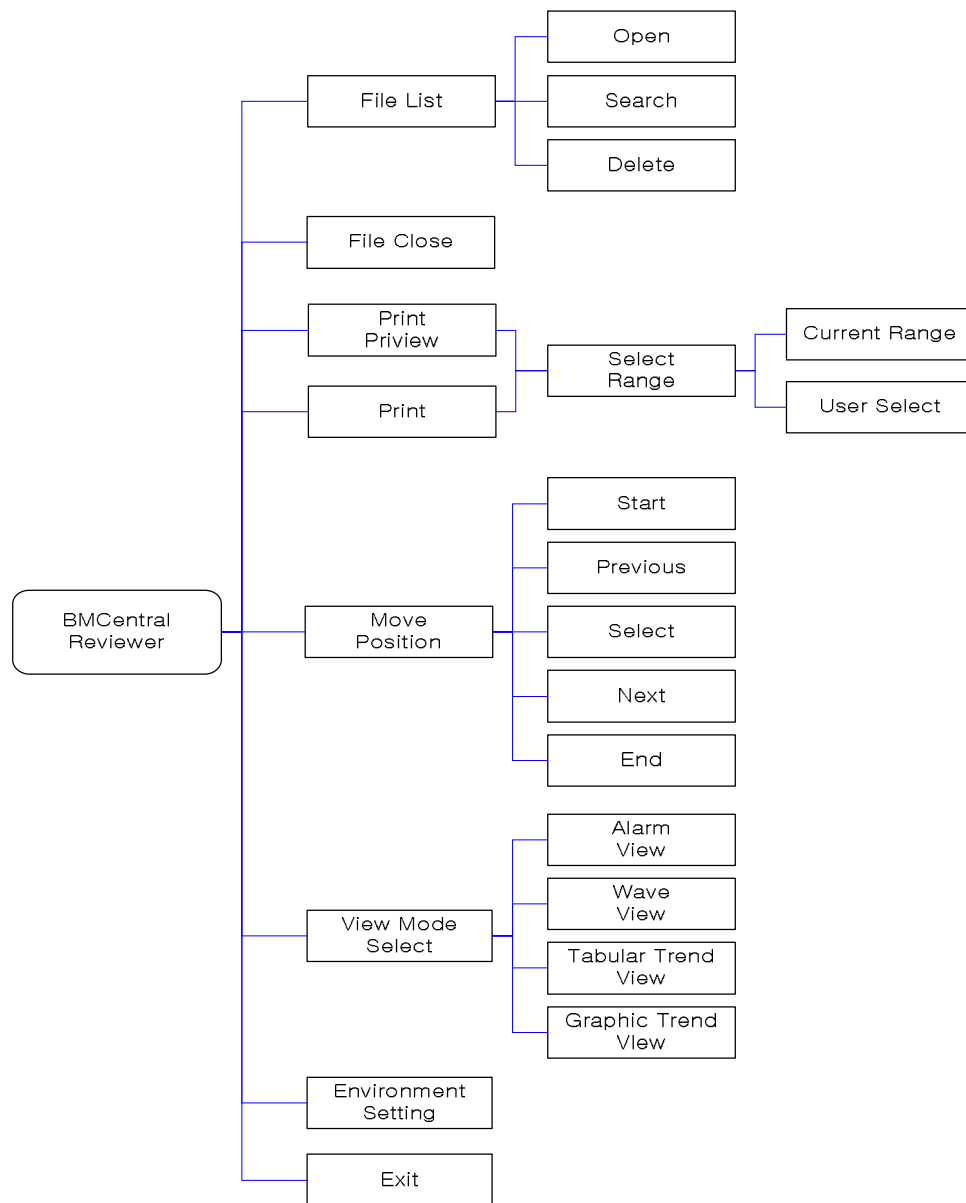


< BMCentral Client Menu >

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4-3. BMReviewer Menu (Function) Tree

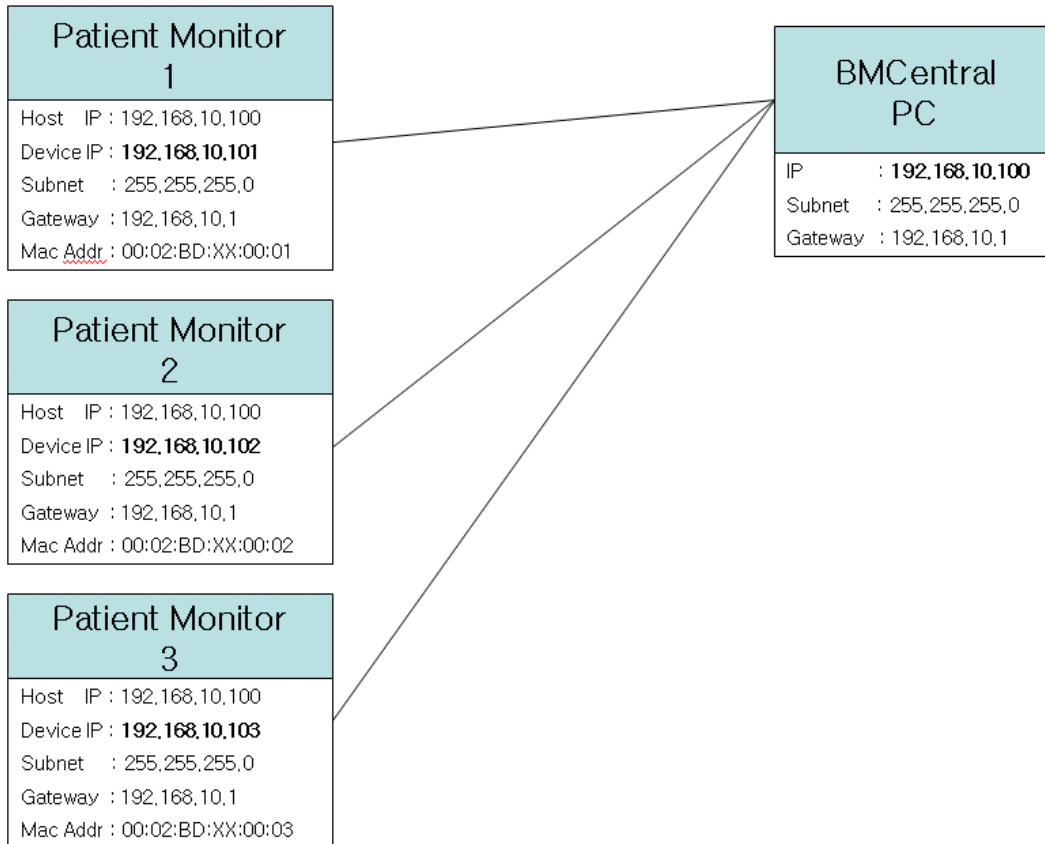


< BMReviewer Menu>

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4-4 LAN (Local Area Network) Configuration



This example based by PC IP 192.168.10.100 standard
Preceding three-digit of IP must same with each other. It can classified
by last digit

Mac Address of device must start as follows (00:02:BD)

MAC ADDR : 00:02:BD:XX:XX:XX

Mac Address should be difference with each other. It will be classified by last three
digit

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4-5. Q & A

- 1) In case that connection of BMCentral is unstable or, failed,
 - Check out LAN connection.
 - Check out the latest protocol of patient monitor is applied.
(Check out software version)
 - Check out IP address & central "On/Off" from patient monitor.
 - Check out "Firewall or Anti-virus software"
- 2) In case that error message regarding old protocol is popped up,
 - Please update the latest software version of patient monitor
- 3) In case that error message about short memory space,
 - Date backup or, remove some files with "Reviewer" Or, set up the automatic data deletion.
- 4) In case that recording button disappears,
 - Check out whether the present client is the state of "Admit" or not.